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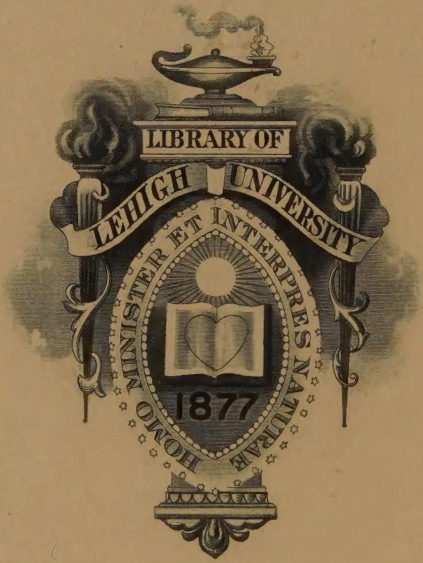
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THE BUSINESS ADMINISTRATION OF A SCHOOL SYSTEM

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BY

WARD G. REEDER
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TO

PROFESSOR FRANKLIN BOBBITT

MODEST GENTLEMAN AND SCHOLAR
WITHOUT WHOSE TEACHING, GUIDANCE, AND KINDNESS DURING MY STUDENT DAYS AT THE UNIVERSITY OF CHICAGO THIS BOOK COULD HARDLY HAVE BEEN PREPARED

PREFACE

During recent years numerous books in the field of school administration have been published. To date all of these books have dealt wholly or chiefly with the educational side of school administration; that is, with such topics as the curriculum, textbooks, the teaching corps, extracurricular activities, pupil personnel, health supervision, and the scientific-measuring movement. In all the treatises on school administration the business affairs of the schools have been neglected. In this volume, therefore, I have essayed to discuss that large and important phase of school administration.

In the preparation of the volume I have attempted to keep in mind the chief items of business the administration of which devolves upon the local school officials. I have written of how to procure revenue for the schools and of how to spend it. Convinced, however, that the *expenditure* side of the revenue problem has been particularly neglected, I have emphasized that side. My aim has been to discuss the urgent problems of local school officials; problems, therefore, of general financial implication, such as the equalization of educational opportunity, potential sources of revenue, the control of school finances, the mounting school costs, and ability to finance the schools have not been treated. I reserve discussion of these and other of the urgent questions of school finance to a later work.

The volume could hardly have been prepared without the generous assistance given by numerous individuals. The school business officials and superintendents of schools in hundreds of communities in all states of the Union gave me invaluable help by writing me and conferring with me concerning the ways in which they administer various school functions, and for that coöperation I am grateful. For innumerable suggestions I hereby give credit to that school administrator's "Bible," — namely, *The American School Board Journal.* The publishers of that magazine kindly permitted the direct quoting of much material, and for that privilege I am indebted; a further evidence of the large extent to which I have relied upon the articles in this magazine is seen by a perusal of the lists of Selected References which appear at the end of each chapter of the book. More than to any other persons, I am indebted to my colleagues, Dr. E. E. Lewis and Dr. A. O. Heck, for a critical reading of the manuscript and for many helpful suggestions; without their sympathetic interest, incisive criticisms, and kind suggestions, the completion of the book would have been much delayed. Finally, I owe much to the stimulus of my students in Ohio State University who have suffered me as instructor in a course entitled "Business Administration of Schools" for several years; the questions and the suggestions of these practical school-administrators have been the chief inspiration for the material of the book.

WARD G. REEDER

COLUMBUS, OHIO

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THE BUSINESS ADMINISTRATION OF A SCHOOL SYSTEM

CHAPTER I

THE FUNCTION OF BUSINESS ADMINISTRATION IN THE SCHOOLS

Education is not only the most important business of a state, but, by facts and figures, it is the largest business of a state. The size of this business is more fully comprehended when it is noted that, in comparison with other public businesses, far more money is spent in carrying on education, far more people are employed in it, and far more people are affected, either directly or indirectly, by it. Approximately one fifth of the American people are now in school, and there are few homes from which there is not enrolled at least one representative. To provide educational facilities for this multitude of twenty-five million pupils, more than a million salaried employees are regularly required: to finance this huge program, more than $2,500,000,000 is needed annually. To elaborate upon the importance of education would be trite, and the story of the historic faith of the American people in education has often been told.

The Function of School Administration

This large and important enterprise cannot realize its potentialities unless it is properly organized and administered. Revenue must be procured and accounted for;

teachers and other employees must be selected and regularly paid; building sites must be selected and purchased; buildings must be erected, repaired, and operated; equipment and supplies must be furnished; inventories must be taken; pupils must be enrolled, classified, and kept regularly in school; and courses of study and textbooks must be provided. In brief, there are hundreds of details incident to the running of a school system for which someone must be responsible. A school system can no more run itself than can a private business. Machinery must be established which will assure a prompt, economical, and otherwise efficient performance of these hundreds of functions of which a few of the larger and more important have just been mentioned. This, briefly, is the purpose of school administration — to facilitate an efficient management of the schools by seeing that each part of the organization bears to each other part the proper relation.

It should never be forgotten that the school exists only for the instruction of the pupil. The purpose and the efficacy, therefore, of any part of the school organization must be measured by the extent to which such part contributes to the giving of instruction. So it is with all school administration; it exists only to facilitate the giving of instruction. School administration does not exist for itself; it is only a means, not an end, and must always be a servant to the pupil.

Divisions of School Administration

School administration may be divided into two fields,— namely, *educational* administration and *business* administration. This classification is only general, however, for the line of demarcation between the two fields is not easily distinguished. The two fields cannot be entirely separated;

indeed, no attempt should be made to separate them, because the aim of both is the same — *to facilitate the giving of instruction.*

In school administration, every business function has its educational implications; likewise, every educational function has its business implications. If we define educational administration as that phase of school administration which is concerned with the teaching function, — that is, with such functions as the selection and training of teachers and the grouping of pupils, — we immediately see business implications. For example, contracts must be made with the teachers, which is partly a business function; they must be adequately and systematically paid, which involves the derivation of a proper salary schedule, of regulations governing pay during the incapacity of the teacher, and of a payroll procedure; a budget for the payment of such employees has to be made, and revenue for the pay roll procured and properly accounted for. Likewise, the size of classes cannot be determined without considering the cost of large classes versus small classes. What has been said of teachers and the size of classes can be applied with equal cogency to all other phases of school administration which are chiefly of an educational nature. The entire field of school administration has its business implications; cost and financial economy are never to be forgotten. The financial well of the public is not inexhaustible, and, even if it were, it should not be drained by poor business policies.

If business administration of schools is defined as that phase of school administration which is concerned with the procuring and spending of the revenue, a consideration of educational values must follow immediately. The best ways to spend money must be determined largely on the basis of educational values. When we say the "best," we mean *the best for the pupil.* In planning a school building, for example, the uses to which the building is to be put should receive first consideration; the determination of these uses is primarily an educational function. Likewise, the best school supplies and equipment cannot be purchased without keeping in mind the purposes for which these materials are to be used. Indeed, there is no phase of business administration of the schools that does not have educational implications.

Good business administration of the schools seeks to give 100 per cent value for each dollar expended. The welfare of the pupil is always in mind. Educational values and processes are always considered. Good business administration is concerned with the procuring and spending of revenue, particularly with the latter. Obtaining the revenue is a task easily performed, but the spending of the revenue — well, that is a different matter!

Approximately 50 per cent of the school revenue is spent for salaries of teachers, principals, supervisors, and superintendents. The remainder is spent for other items — items which are usually classified as business items. Included in the latter list of expenditures are such expenses as those for the operation and maintenance of the school plant, fixed charges, capital outlay, general control, educational supplies, auxiliary agencies, and miscellaneous.

Necessity for the Elimination of Waste

When the magnitude and complexity of the school system are contemplated, the thousand opportunities for waste and inefficiency in the administration of the system become apparent. No one believes that all these opportunities are being avoided; no one argues that the schools are 100 per cent efficient. In saying this, there is no implication that there is wholesale and malicious waste in the administration of the schools; quite the contrary is meant. It is opined that school officials are preponderately honest, conscientious, and efficient. Misappropriation and defalcation among school officials are practically unknown. Although comparisons are odious, we know of no public officials whose conscientiousness, honesty, and ability are so seldom questioned.

In recalling the way in which public education has evolved, it is realized that conditions have not always been favorable to the development of a highly efficient system. To bore the reader by stamping over old ground is unnecessary. It is important, however, to call attention to the leaps and bounds by which education has advanced during recent decades. In the history of no public institution in this country is there recorded a more phenomenal advance than education has made; its development is the marvel and the envy of the whole world. From being the privilege of a few, education has become, in theory and in fact, universal. It has enlarged its scope and enriched its quality. It has not only enriched its course of study and increased the years during which the rising generation is held in tutelage, but it has also assumed many functions which formerly belonged to other institutions. It has undertaken reform and welfare work, public health and recreation, and adult education. It has provided health clinics, gymnasiums, natatoriums, playgrounds, libraries, museums, public lectures, moving pictures, free use of school buildings, Americanization, penny lunches, and transportation of pupils who live more than a certain distance from school. It would indeed be miraculous if all these diverse and complex activities could be so well administered as to eliminate all waste.

Perfection in education is still far from realization. What is worth doing and what is the most accurate adjustment of means to ends are yet to be conclusively proved. Waste and inefficiency in the administration of the schools may be admitted as a relative condition, — relative, that is, to absence of waste and to obtaining the best product for the existing financial outlay. At no time to be ignored, this waste becomes under the present financial stringency of the schools especially worthy of scrutiny. The public is demanding an increasingly exact accounting of the schools, for school expenditures have mounted at an extremely rapid rate. The clamor for the education of more children and the cry for a better quality of education — which like a better quality of anything costs more money — abundantly explains the increase in expenditures. In spite of the legitimacy of the need for the increased revenue, the tax-paying public has begun to groan under the financial burden. The taxpayers insist that all waste and inefficiency be eliminated; and while they call for more and better education, they demand that expenditures be minimized.

The school official cannot ignore the point of view of the public, even though that view is partly incongruous. The public does not want high taxes, but it craves the conveniences that make taxes high. Making an adjustment to this paradox is the task before school officials. The school official must not only account for every dollar expended, but he must evaluate the activities which the school is performing, agreeing upon those that are most worth while, — those that must be carried forward at all events and at all hazards. Having selected these necessities, he can determine other things which the public can afford and which it should willingly finance.

On the other hand, school officials must not uncritically yield to the demand for curtailment. In many instances the public is demanding a curtailment of the school program in which no conscientious school official can acquiesce, — certainly not acquiesce without pointing out to the public the error of its judgment. It is the task of school officials to steer between the Scylla of an insufficient program and the Charybdis of a program which the public cannot afford; to do this, vision, circumspection, and courage are necessary.

Examples of Financial Economies

Many school officials have not been sufficiently alive to the importance of eliminating waste, nor have they always been aware of ways and means by which waste may be eliminated. Some, however, have kept in mind the financial stress of the schools and have done significant things in the elimination of waste. Had we space to do so we could report hundreds of economies which we know to have been effected by enterprising school officials. We do, however, wish to list herewith a few economies that have been effected and which will further support the thesis of this chapter, — namely, that a more efficient administration of the schools is possible.

1. Superintendent C increased the pupil-teacher ratio in his city from 25:1 to 30:1. He attempted to give each teacher thirty pupils. He was led to increase the size of classes by the results of certain experiments which showed that small classes are little more efficient than large classes. By increasing the size of a typical class by five pupils, he was able to run the schools of his city with eight teachers less. Since the median salary of teachers in that city was $1400, he saved $11,200 annually. The money thus saved was used in increasing the salaries of the remaining teachers, which increases had long been due.

2. High-school principal R standardized the workday of his teachers by giving all of them approximately the same teaching load. When he went to this particular position he found that some of the teachers were teaching only three

or four periods a day and others were teaching six periods a day; yet the extra-class duties of the teachers were approximately the same. He attempted to give all teachers a standard load of six periods a day, and, by so doing, he was able to run his school with three teachers less. An annual economy of $5400 was thus effected.

3. Principal B, of a consolidated school of five teachers and ninety students, organized a program of high-school studies whereby certain subjects were given every other year; for example, physics was alternated with chemistry, English literature with American literature, and economics with sociology. By such alternation of studies it was possible to dispense with the services of one teacher and still to offer the same program of studies. The annual salary of the teacher eliminated was $1600.

4. Superintendent J effected an economy in the administration of pay for disability of teachers. In one semester a saving of $16,000 was made in pay for disability. This economy was effected by a careful checking up on reasons for teachers' absences and by encouraging teachers to maintain a higher standard of health.

5. Superintendent M reports that a few years ago his city had a large number of classrooms which were not in use during certain hours of the day — this, in spite of the fact that there was a general cry for more school buildings. The superintendent and principals ascertained all vacant rooms and found that by making use of all rooms every school hour in the day twelve hundred more pupils could be accommodated. In that city the typical classroom then cost $10,000 and housed thirty pupils. Thus this city effected an economy of forty classrooms, which represented, in the aggregate, a sum of $400,000.

6. Superintendent N made a study of the per pupil cost by school buildings of such items as fuel, janitors' supplies,

educational supplies, electric current, and water. The per pupil costs for each of these items in the various buildings varied widely; water costs, for example, ranged from 2 cents per pupil in one building to $3.04 per pupil in another building. The principals, teachers, and janitors, upon seeing where they ranked, became wholesomely critical of their expenditures. By plugging a few leaks, the school which had been spending $3.04 per pupil annually for water found that it could save $40 per month on its water bill.

7. Principal S, of a consolidated school, reports that he was able to eliminate one school bus by a more efficient management of the routes of the remaining busses. He effected thereby an annual economy of $1000.

8. Superintendent Y organized the purchasing department of his city so that all discounts offered by merchants for supplies could be realized. The discounts for accounts paid within ten days amounted to $2000 annually. Before the employment of this enterprising superintendent, advantage had not been taken of such discounts.

9. County superintendent B organized coöperative purchasing of supplies among the twenty-three school districts of his county. Because he was thus enabled to purchase in larger quantities, he effected, compared with expenditures for previous years, an annual saving of $2200.

10. President D saved $2000 annually in the fuel bill of his institution by doing such things as checking up the efficiency of the boilers, covering heat pipes with asbestos, repairing broken window glass, and placing weather strips on windows and doors.

11. Superintendent W advised his board of education to drop all old-line insurance on the school buildings and to create its own insurance fund. His recommendations were adopted, and he estimates, for a twelve-year period, a saving of $25,000 annually under the new plan.

12. Superintendent E recommended that his board of education employ a full-time architect, on a salary basis. This recommendation was adopted with the result that over a period of ten years the city has secured its architectural services at a cost of 3 per cent, whereas the typical city which employs its architects on a project basis pays approximately 6 per cent for such services. During the ten-year period this city has saved $55,000 on its architectural costs, and it thinks that the services given by the full-time salaried architect have been of the highest quality.

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BRINTNALL, B. W. "Saving Seattle School Money," *American School Board Journal* (March, 1925) Vol. LXX, pp. 42, 135.

Shows how $215,000 was saved during one year in the schools of Seattle in spite of an increased enrollment.

CASTLE, L. E. "Cutting Consolidated School Costs," *American School Board Journal* (May, 1922) Vol. LXIV, p. 45.

Describes how the problem of retrenchment was handled in a consolidated school.

ETTINGER, W. L. "Economy in School Administration," *School and Society* (November 12, 1921) Vol. XIV, pp. 409–415.

Discusses the elimination of waste in such things as breakage, wrong classification of pupils, supplies, and school plant.

GREGORY, V. J. "Minneapolis Strikes the Economy Road," *American School Board Journal* (December, 1924) Vol. LXIX, pp. 55, 132.

Describes how Minneapolis saved $250,000 in five years in its school building department.

JONES, R. G. "Possible Economies through Control of Business Administration," *School and Society* (March 15, 1924) Vol. XIX, p. 297.

Suggests possible economies with particular reference to the number of teachers.

STETSON, P. C. "Some Examples of Efficiency in School Business Management," *American School Board Journal* (December, 1917) Vol. LV, p. 17.

Cites examples of economies effected in one city.

CHAPTER II

ADMINISTRATIVE RELATIONSHIPS IN SCHOOL ORGANIZATION

Types of Relationships

The directors of practically all industries have deemed it advisable to place the responsibility for the direction of industries in the hands of one person. In industrial management, examples of divided control are infrequently found. In school administration, on the contrary, divided executive responsibility is often found. In fact, in a few states divided administration of the schools is facilitated by state law, and in all states, excepting New York, it is legal. This chapter essays to depict the types of school-administrative relationships now extant and to criticize these types. The classification into types will be made on the basis of the relationship which the educational and the business departments have with one another and with the board of education. Two types — namely, the *unit* and the *multiple* — are recognized.

1. *Unit Type*

The unit type of school organization is that type in which one individual administers in person or directs the administration of the whole organization. In that type the function of directing both the educational and the business departments is placed in the hands of one individual, — namely, the superintendent of schools; all employees, business and educational, are *subordinate* to the superintendent of schools, and the latter in turn is responsible to the board of education, which represents the public in all school matters.

In an exhaustive investigation of the administrative relationships of school business executives, A. L. Heer makes a further classification of the unit type. He makes it on the basis of the scope of the duties performed by business executives; he classifies the unit organization into (1) the *unit-chief-executive* type, (2) the *unit-major-executive* type, and (3) the *unit-minor-executive* type. He defines those terms as follows:

> The unit-chief-executive type of organization is that unit type in which all business affairs are administered or directed by *one* business executive.
>
> The unit-major-executive type of organization is that unit type in which *all* business affairs are administered or directed by *two or more coördinate* business executives. For example, a city which has a purchasing agent who looks after the purchase, storage, and distribution of supplies, also a superintendent of buildings who supervises buildings and grounds, and a secretary who keeps the financial records, would be classified under this type.
>
> The unit-minor-executive type of organization is that unit type in which only a part of the business affairs are administered or directed by a business executive or executives, while the remainder of the business affairs are administered by the superintendent of schools or by the board of education. For example, a city which has a purchasing agent to purchase, store, and distribute supplies, while the superintendent of schools and the board of education administer the remainder of the business activities, would be classified under this type.[1]

Figs. 1, 2, and 3 show organization charts that are representative of the cities which have these types of organization.

Inquiry shows that the size of the school system bears

---

[1] A. L. Heer, *The Present Status of Business Executives in the Public Schools of the United States in Cities with Twenty-five Thousand or More Inhabitants.* Unpublished doctor's thesis, Ohio State University, Columbus, Ohio, 1926.

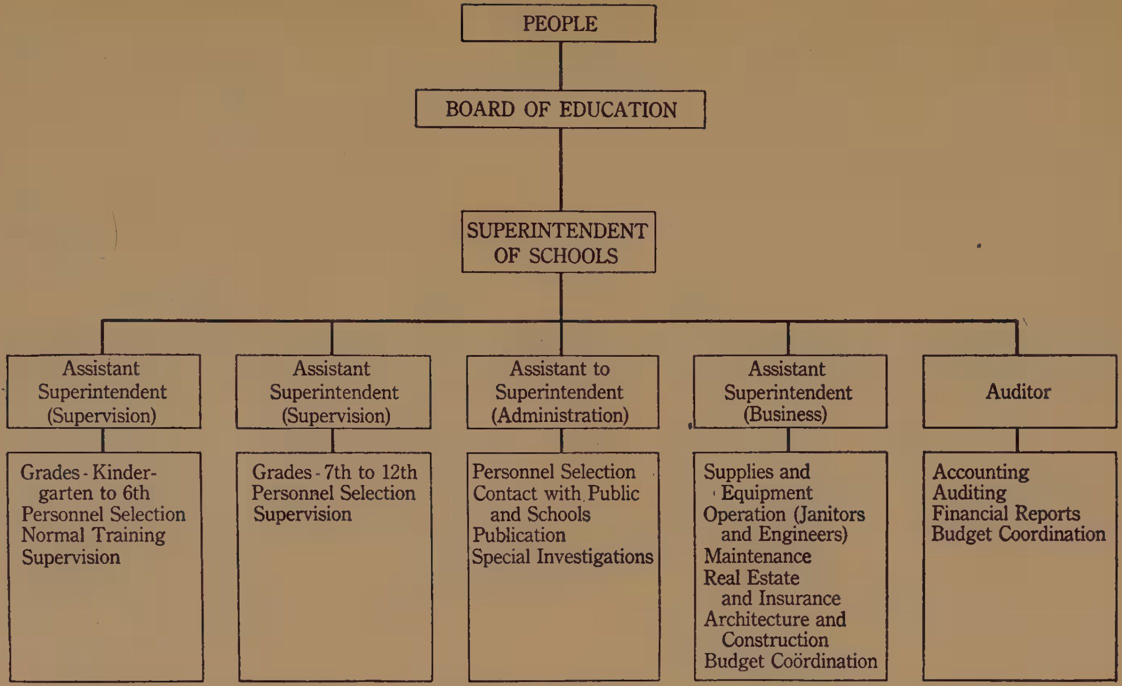
PEOPLE
BOARD OF EDUCATION
SUPERINTENDENT OF SCHOOLS
Assistant Superintendent (Supervision)
Assistant Superintendent (Supervision)
Assistant to Superintendent (Administration)
Assistant Superintendent (Business)
Auditor
Grades - Kindergarten to 6th
Personnel Selection
Normal Training
Supervision
Grades - 7th to 12th
Personnel Selection
Supervision
Personnel Selection
Contact with Public and Schools
Publication
Special Investigations
Supplies and Equipment
Operation (Janitors and Engineers)
Maintenance
Real Estate and Insurance
Architecture and Construction
Budget Coördination
Accounting
Auditing
Financial Reports
Budget Coordination

FIG. 1. Unit-chief-executive type of organization as represented by Minneapolis, Minnesota

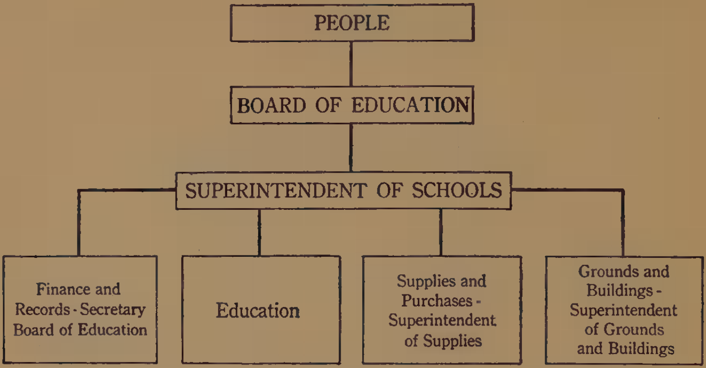
PEOPLE
BOARD OF EDUCATION
SUPERINTENDENT OF SCHOOLS
Finance and Records - Secretary Board of Education
Education
Supplies and Purchases - Superintendent of Supplies
Grounds and Buildings - Superintendent of Grounds and Buildings

FIG. 2. Unit-major-executive type of organization as represented by Trenton, New Jersey

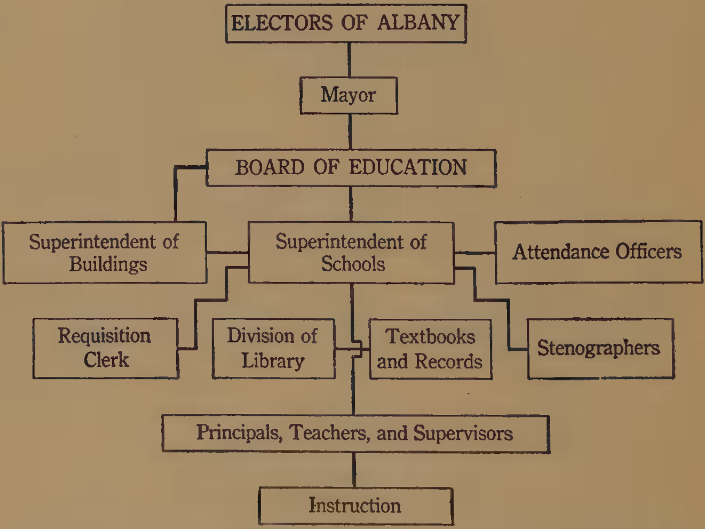

FIG. 3. Unit-minor-executive type of organization as represented by Albany, New York

little relation to the type of administrative relationship which is in operation. In his study of administrative relationships in cities of the United States having more than 25,000 population, Heer found that although the unit-minor-executive type of organization is usually used in the smaller cities, nevertheless many of the smaller cities have the unit-chief-executive type of organization. Heer's data on this point are shown in Table I.[1]

TABLE I. DISTRIBUTION OF CITIES, ACCORDING TO SIZE, WHICH HAVE EACH OF THE THREE UNIT TYPES OF ORGANIZATION

Population of City	Number and Per Cent of Cities					
	Unit-Chief-Executive Group		Unit-Major-Executive Group		Unit-Minor-Executive Group	
	Number	*Per Cent*	*Number*	*Per Cent*	*Number*	*Per Cent*
50,000 or less . . .	19	38.78	21	52.5	18	69.2
50,000–99,999 . . .	15	30.61	12	30.0	3	11.6
100,000–149,999 . .	3	6.12	3	7.5	5	19.2
150,000–199,999 . .	2	4.08	1	2.5	0	0
200,000 or more . .	10	20.41	3	7.5	0	0
Total	49	100.00	40	100.0	26	100.0

On the basis of the general principles of school administration Heer recommends the unit-chief-executive type in preference to either the unit-major-executive or the unit-minor-executive type. He argues that both the unit-major-executive and the unit-minor-executive types of organization require too much of the time of the superintendent of schools in supervising and in coördinating the work of the various divisions of the business department. It is apparent that where either of the latter types of organization obtains, the superintendent of schools must hold frequent conferences with the two or more coördinate executives; such conferences obviously require more of his time than one executive would require.

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[1] A. L. Heer, *The Present Status of Business Executives in the Public Schools of the United States in Cities with Twenty-five Thousand or More Inhabitants.* Unpublished doctor's thesis, Ohio State University, 1926.

2. *Multiple Type*

The multiple type of organization is that type in which the business affairs are administered in person or directed by *one or more* executives who are *coördinate* to the superintendent of schools. In the multiple type both the superintendent of schools and the business executive or executives are directly responsible to the board of education. Whereas in the unit type of organization the business executive or executives are *subordinate* to the superintendent of schools, in the multiple type such executive or executives are *coördinate* to the superintendent of schools.

The most prevalent type of multiple organization is the *dual* type. In that type the business affairs are administered in person or directed by *one* executive who is *coördinate* to the superintendent of schools. Occasionally, however, we find a city with several coördinate school heads. For example, Indianapolis, Indiana, has a four-headed organization, consisting of the superintendent of schools, the superintendent of buildings and grounds, the business-director, and the secretary of the board of education. The St. Louis organization is six-headed, consisting of the superintendent of instruction, the attorney, the auditor, the commissioner of school buildings, the secretary-treasurer, and the supply commissioner.

On the basis of the scope of duties performed by the business executives of multiple organizations, Heer further classifies the multiple organization into (1) the *multiple-major-executive* type and (2) the *multiple-minor-executive* type. He defines these terms thus:[1]

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[1] A. L. Heer, *The Present Status of Business Executives in the Public Schools of the United States in Cities with Twenty-five Thousand or More Inhabitants.*

The multiple-major-executive type of organization is that type in which *all* business affairs are administered or directed by *two or more coördinate* business executives.

The multiple-minor-executive type of organization is that type in which only a *part* of the business affairs is administered by a business executive or executives *coördinate* to the superintendent of schools.

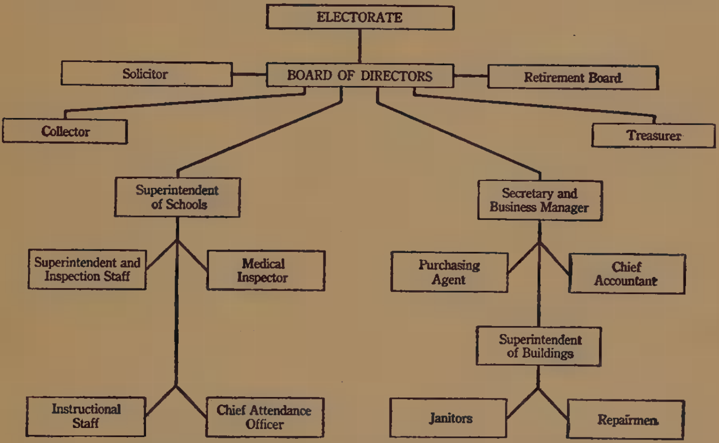

FIG. 4. Dual type of organization as represented by Harrisburg, Pennsylvania

Figs. 4 and 5 illustrate representative multiple-type organizations; Fig. 4 illustrates a simple type of dual organization; Fig. 5 shows a multiple-major-executive type of organization.

Advantages of the Unit Type of Organization

The tendency in recent reorganizations is toward the adoption of the unit type of organization. The advantages of the unit type of organization may be summarized thus:

1. It provides for centralized control, and centralized control is considered to be, at least in all other fields of endeavor, a first prin-

ciple of efficient management. Try to imagine a company of soldiers having more than one captain, or an industry having more than one superintendent!

2. It tends to prevent the development of friction, which frequently occurs in multiple-headed organizations. It secures coördinated effort.

3. It guards against the waste due to duplication of effort, which frequently obtains in multiple-headed organizations.

The unit type of organization has been recommended by all committees, whether constituted of laymen or of school people, which have studied the problem during the last two decades. We quote herewith from the report of the Finance Commission of the City of Boston to the mayor of that city; the members of the commission, it is worth noting, were laymen. The recommendations of the commission were based largely on the survey report of a committee of educators of which J. H. Van Sickle was chairman. The report of the finance commission says:[1]

1. The best interests of the public school children of Boston demand that the office of superintendent of schools shall be a strong centralized, administrative office.

2. The present organization of the offices of the school committees, consisting of independent executive officers, viz., the board of superintendents, the business agent, the secretary, and the schoolhouse custodian, is not the best possible organization to produce efficient results.

3. The best business practice not only in large corporations but also in educational administration supports the idea of a centralized executive.

4. The whole tendency of reform in the Boston school affairs has been the gradual centralization of power in the superintendent of schools.

5. The reform will be completed when the superintendent is made the chief executive officer of the school committee.

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[1] Reports and Communications of the Finance Commission of the City of Boston, Vol. XII (1917), p. 218.

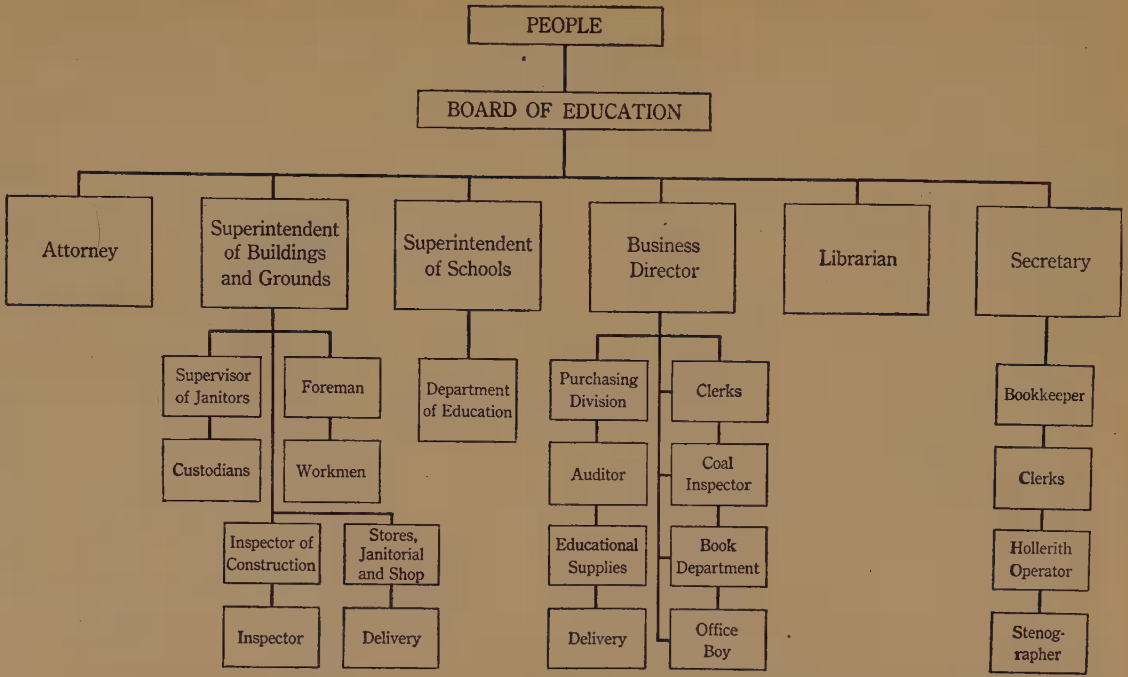

FIG. 5. Multiple-major-executive type of organization as represented by Indianapolis, Indiana

On the basis of the foregoing conclusions the commission made the following recommendations:[1]

> 1. That the superintendent of schools be made the chief executive officer of the school committee. . . .
>
> 2. That the board of superintendents, as a board, be abolished and the assistant superintendents be made assistants to the superintendent. . . .
>
> 3. That the business agent be made responsible to the superintendent of schools.
>
> 4. That the secretary of the school committee report to the superintendent. . . .
>
> 5. That the schoolhouse custodian be made subordinate to the superintendent of schools.

If space permitted, many other reports of school surveys might be quoted and all would argue for the desirability of having a unified executive control. However, quotations from two other reports will have to suffice. In 1921 the Citizens' Bureau of Milwaukee made a report to the board of education of Milwaukee on "The Reorganization of the Milwaukee School Board." The report says in part:

> The proper type of organization and the one recommended in every recent responsible book and survey on the subject, in cities such as Boston, Portland, Denver, Salt Lake City, and Minneapolis, is one which places the superintendent as the executive head of the entire school system and gives him coördinating power over all departments, subject always to appeal to the board in case of fundamental disagreement. The superintendent should be the real head of the school system as well as its titular head. . . .
>
> There is no possibility of a maximum of efficiency or economy in the conducting of a school system which provides for more than one executive head — witness the recent unfortunate action of the present business manager of the school board in closing the schools on primary day, in spite of the opposition of the superintendent of schools. This incident may have made good newspaper headlines,

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[1] Reports and Communications of the Finance Commission of the City of Boston, Vol. XII (1917), pp. 219–220.

but it certainly harmed the Milwaukee school system to a degree far greater than the average layman may surmise. Milwaukee cannot afford to continue the present dual-control system and must eventually locate responsibility in its superintendent of schools. It is urged that this be done at the next legislature.[1]

A report of the citizens' school committee of Cleveland, which was made in 1923 to the board of education of Cleveland, speaks thus of the evils of divided school control existing in that city:[2]

> It is the opinion of the General Committee that this absence of a single-headed executive control for the operation and management of the school system is the outstanding defect in the school organization. To the presence of the dual-headed — in fact, three-headed — executive organization can be traced the cause of the major criticisms that may be made of public-school management in this city.

Defects of the Multiple Organization

In stating the advantages of the unit type of organization, which has been done in preceding paragraphs, some of the chief shortcomings of the multiple type of organization have been implied. The shortcomings of the multiple organization are well summarized by H. P. Smith[3] as follows:

> 1. The administrative organization of a multiple-type city may include one or more executive officers whose point of view may be other than educational, a situation which may profoundly affect educational practice. . . .
>
> 2. The lack of an educational point of view may result in the improper planning and equipping of school buildings where the business executive is responsible for this phase of the work of the school system. . . .
>
> 3. The proper maintenance of the school plant may be seriously hampered for educational activities due to the lack of an educa-

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[1] From a mimeographed copy of the report by the Bureau.

[2] Report of the Citizens' School Committee of Cleveland, p. 3.

[3] *The Business Administration of a City School System*, pp. 58–82.

tional point of view where the business executive of a multiple-type city is responsible for this activity. . . .

4. The operation of the plant with a view to serving educational needs may be seriously hampered by the lack of an educational point of view in the business department of multiple-type cities. . . .

5. The lack of an educational point of view in the business executive often results in the purchase of cheap and improper supplies for instructional use. . . .

6. The division of administrative authority characteristic of multiple-type cities may result in the improper assignment of functions among the executives of the school system. . . .

7. The division of administrative authority and responsibility characteristic of multiple-type cities fails frequently to center responsibility definitely in some one individual and permits a shifting of responsibility on the part of one executive to another. . . .

8. The administrative organization characteristic of multiple-type cities may result in such an attitude on the part of one executive toward another that affairs are conducted on a purely personal basis. . . .

9. The administrative organization of a multiple-type city may result in a lack of adequate financial planning and reporting. . . .

10. The administrative organization characteristic of multiple-type cities may result in hampering the execution of the policies of the educational department or even in actually determining them. . . .

Smith cites many happenings in school administration which prove that the previously mentioned weaknesses are not imaginary. We regret that the limits of this book do not permit the reproduction of some of these instances; however, if the reader desires documentary evidence of the harmful results of the multiple type of organization, he will find an abundance of it in Chapter IV of Smith's study, and he will also find much information of the same nature in Chapter V of Heer's study. A final weakness of the multiple organization is that it frequently plunges the schools into "politics," a situation in which the victor often demands the spoils.

Need for Rules and Regulations

Written rules and regulations are considered to be a sine qua non in industrial management and organization. Such rules and regulations are as necessary in school administration as in industrial administration. Yet such guides exist in less than half the cities of more than 25,000 population. If they exist so infrequently in the larger communities, — communities in which school administration has made its greatest strides, — they are probably as scarce as a dodo in the smaller cities and in the village and rural districts.

In one of his questionnaires, sent to superintendents of schools in cities of more than 25,000 population, Heer asked, "Do you have written rules and regulations for the business department of your school system?" The replies to that question are summarized in Table II.[1]

TABLE II. WHETHER RULES AND REGULATIONS ARE FOUND IN CITIES OF MORE THAN 25,000 POPULATION

	Unit Type			Dual Type	Multiple Type		Total
	Chief	Major	Minor		Major	Minor	
Yes	20	16	2	22	19	4	83
No	25	16	15	22	9	4	91
No reply	4	8	9	4	3	4	32
Total	49	40	26	48	31	12	206

Rules and regulations should be adopted by every school system, whether the system is large or small. The chief standards which such rules and regulations should meet are as follows:

1. They should be *written*. Ideas best project themselves into reality when crystallized in written language. Verbal rules and

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[1] A. L. Heer, *The Present Status of Business Executives in the Public Schools of the United States in Cities with Twenty-five Thousand or More Inhabitants.*

regulations are not so apt to be well formulated; moreover, they are likely to be forgotten both by those who make them and by those for whose guidance they are made.

2. They should state in unequivocal language the functions of the various employees. However, they should not be so rigid as to make it impossible for employees to exercise their individuality when to do so would result in greater efficiency.

3. They should be amended as the need arises. Any changes effected should be made known to all concerned.

4. They should be followed. Rules that are archaic and useless should be repealed. Those that have not been repealed should be enforced.

The advantages which would accrue from such rules and regulations are as follows:

1. Each employee would know his functions, and responsibility could, therefore, be definitely placed. The result would be less muddling, less meddling, and less characterized by that administrative pastime which is commonly known as "passing the buck." Much of the friction which now exists between boards of education and superintendents of schools, between educational and business employees, — in brief, between all employees, — would be obviated.

2. Such rules and regulations would especially aid new employees, and particularly would they aid employees who have recently entered the organization from another community. Without a guide such as rules and regulations afford, new employees often grope in the dark. Rules and regulations would immediately inform such employees of their powers and duties. Still more, they would facilitate the training of inexperienced employees.

Advantages of an Organization Chart

Every school system, particularly if it is of considerable size, would do well to construct an organization chart showing its administrative relationships. Such a chart is of great service in constructing a new organization or in improving the organization already in existence. It makes it possible to see in outline the whole organization. By means of it, administrative incongruities such as overlapping of authority and gaps in authority can be more readily detected.

The larger the school system is, the more complex the administrative organization will be and the greater the need for an organization chart. However, very few of even the larger school systems have designed such charts. Heer found that only 10.2 per cent of the cities of more than 25,000 population had designed them. The careful making of such charts and the formulation of rules and regulations would do much to obviate many of the faults existing in school administration today. In Fig. 6 is shown a chart of the business organization in Minneapolis — a city which stands in the front rank with respect to the business administration of its schools. Minneapolis has been chosen for illustrative purposes also because of its large and specialized business organization.

Functions of a Board of Education

Administering a school system involves the performance of three functions: (1) making policies, (2) executing policies, and (3) ascertaining how well the policies are operating. We may call the first function the *legislative*, the second the *executive*, and the third the *inspectorial*.

Which of the previously mentioned functions are proper for a board of education to perform and which should be given to the employees of the board? Notwithstanding the fact that this has been one of the most discussed problems in school administration, practice still lags far behind theory. The discussion of the question thus far has not always been helpful because it has dealt largely with prerogatives. The answer to the question cannot be sought in an examination of prerogatives; instead, it must be found in a study of *who can perform most efficiently the* *several functions.* It matters little *who* performs a function so long as it is performed in an efficient manner.

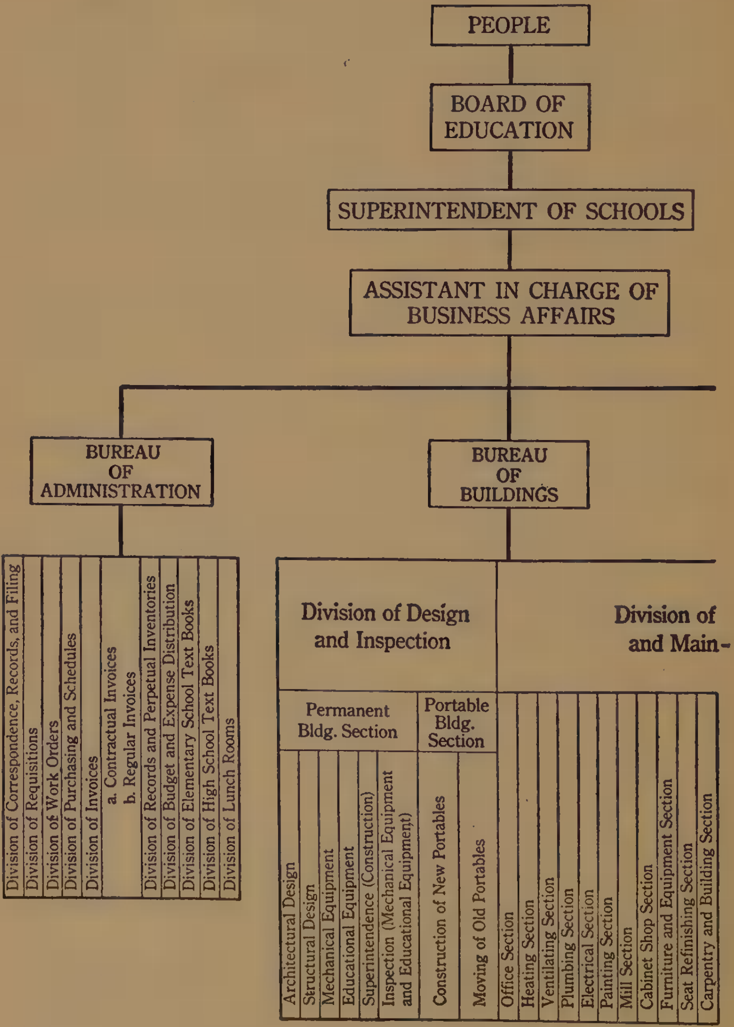
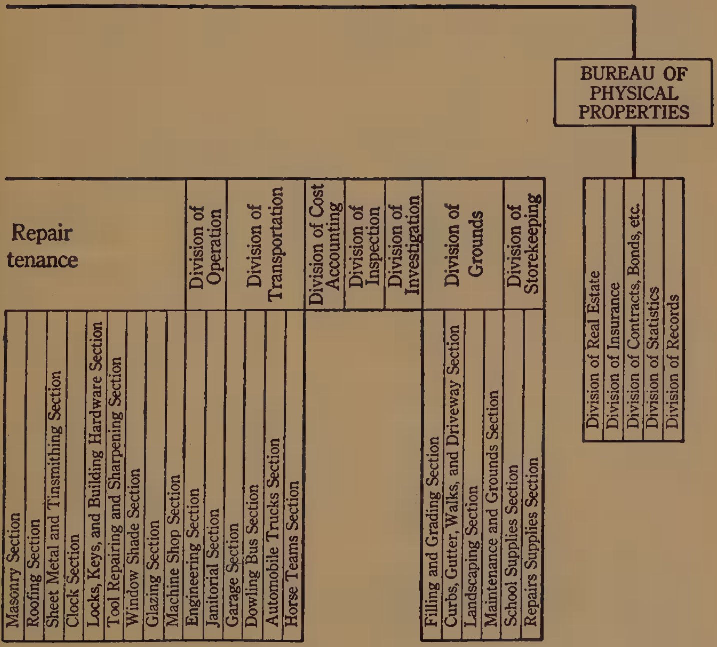

PEOPLE
BOARD OF EDUCATION
SUPERINTENDENT OF SCHOOLS
ASSISTANT IN CHARGE OF BUSINESS AFFAIRS
BUREAU OF ADMINISTRATION
BUREAU OF BUILDINGS
Division of Correspondence, Records, and Filing
Division of Requisitions
Division of Work Orders
Division of Purchasing and Schedules
Division of Invoices
a. Contractual Invoices
b. Regular Invoices
Division of Records and Perpetual Inventories
Division of Budget and Expense Distribution
Division of Elementary School Text Books
Division of High School Text Books
Division of Lunch Rooms
Division of Design and Inspection
Division of
and Main-
Permanent Bldg. Section
Portable Bldg. Section
Architectural Design
Structural Design
Mechanical Equipment
Educational Equipment
Superintendence (Construction)
Inspection (Mechanical Equipment and Educational Equipment)
Construction of New Portables
Moving of Old Portables
Office Section
Heating Section
Ventilating Section
Plumbing Section
Electrical Section
Painting Section
Mill Section
Cabinet Shop Section
Furniture and Equipment Section
Seat Refinishing Section
Carpentry and Building Section

FIG. 6. Organization of Business

To facilitate the administration of education in American communities, boards of education and executive officers, such as superintendents of schools, have everywhere been provided by statute. The practice of legislatures has been to give boards of education large control over the school machinery of the communities; these powers and duties are either specified in the statutes or implied. Superintendents of schools and other school employees, on the other hand, have been given by statute only a few powers and duties; such powers and duties as they have are usually delegated to them by boards of education.

Many infelicities in school administration, and consequently much waste and inefficiency, would be obviated if



Department in Minneapolis, Minnesota

boards of education always realized that administering a school system is a technical function and should therefore be performed by persons who have been trained for this work. Too many boards of education deem that their function is *to run* the schools; they forget, if they ever knew, that their proper function is *to see that the schools are run.* Few citizens who are not physicians would undertake to manage a hospital — to plan the building, to select the equipment and supplies, to choose the personnel, and to prescribe diets for patients; yet many boards of education are attempting to perform as technical functions as these in the administration of schools. Examples of the harmful results of such policy on the part of school-board members are not difficult to find.

The chief function of a board of education is *to formulate policies* — to enact legislation. Such a board should not formulate policies without having before it all the facts available; moreover, even though such recommendations may not be considered expedient to adopt, it should always secure the recommendations of its executive officers before formulating policies. Since the recommendations of the executive officers are based on facts, — at least, they should be so based, — policies recommended by the executive officers should usually be adopted; final decisions on the worth of policies should, however, always be reserved to the board of education.

When a policy has been decided upon by the board of education, it should be executed by the board's professional experts. Members of boards of education have neither the time nor the specialized knowledge requisite for an efficient execution of policies.

After the policies have been executed, information calculated to show how well they have been executed should be collected. Such information serves the purpose of reporting efficiency and at the same time becomes the basis for the enactment of new policies. The securing of such data is another large function of the executive officers of the board of education.

Violations by boards of education of the principles mentioned above are common in the business administration of the schools. Members of boards of education frequently admit that they know nothing about education, but claim that they are familiar with business. They instruct their superintendents, therefore, that they (the superintendents) are to administer the educational side of the system while they (the boards of education) will manage the business side.

The fallacy of this point of view becomes evident when it is noted that every business transaction in school administration has educational implications. The board's professional experts are more likely to be familiar with these educational implications than are school-board members. Much knowledge of education is necessary in selecting a school site, in planning and constructing a school building, and in purchasing supplies. We can think of no business function which boards of education should perform without consulting their professional experts. The not uncommon practice of "business men" administering the business side of the schools results in the waste of thousands of dollars annually; school business is not the same as private business.

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CHAPTER III

PERSONNEL OF THE SCHOOL BUSINESS DEPARTMENT

Importance of [illegible] Efficient Personnel

Whether in industrial concerns or in education, the heads of the various departments are largely responsible for the efficiency of their departments. If a person is poorly qualified, his department will not realize its potentialities, although its form of organization and other external features are ever so meritorious. A well-equipped person, on the other hand, will overcome many obstacles and make his department function to the highest degree of efficiency. In Chapter II several inherent weaknesses of the multiple type of school organization were pointed out. However, in spite of its inherent weaknesses, it is not inconceivable that such a type of organization would function well if those in charge of its several coördinate departments were possessed of considerable knowledge and a desire to coöperate with one another. Alexander Pope well says in his couplet:

> For forms of government let fools contest;
> What'er is best administer'd is best.

On the other hand, a unit type of organization, which is the type that we have recommended, cannot function to the highest degree of efficiency if the individual who directs the organization is poorly qualified.

In brief, the quality of the personnel is the chief determinant of the efficiency of any organization. Such matters as the type of organization and quality of buildings and equipment, though never to be neglected, are of secondary importance. The great movements in education — movements which give luster to the pages of educational history — owe their inception and their consummation largely to the vision and the labor of great leaders. That an institution is the lengthened shadow of an individual has been often said. Observe what Horace Mann did for education in Massachusetts; Henry Barnard, in Connecticut and Rhode Island; John D. Pierce, in Michigan; Caleb Mills, in Indiana; William T. Harris, in St. Louis; and William H. Maxwell, in New York City. The high points in the educational history of the nation, of states, of cities, and of counties are intertwined with the activities of the educational leaders of those times. As is the superintendent of schools, so is the school system. This truism may be paraphrased and applied to the employees in any part of the school system. It may be applied to the principal and to the teacher. Likewise, it may be applied to those persons in charge of the business departments of the schools; as are the business employees of the school system, so the business department will largely be. The most important task of those in charge of the schools is the selection and the retention of competent employees and the maintenance of an esprit de corps among these employees; the efficiency of a school system cannot rise higher than the efficiency of those who administer and operate the system.

Business Administration of Schools: a New Profession

Practically all administrative positions in the schools are of comparatively recent origin. Although public schools existed in Massachusetts as early as 1635, the first city superintendency of schools was not established until 1839, when Providence, Rhode Island, established such an office.

The first county superintendency was also created about 1839. Thus these offices, which are considered so necessary today that they are found everywhere, are less than a century old, despite the fact that public schools have existed in America for almost three centuries.

The position of business executive in the schools is of even more recent origin. In the early days, when education was a much smaller and a much less complex undertaking than today, the schools were managed directly by the whole community assembled in town meetings or by school boards. They were administered in this way until 1839 — the date of providing for the first superintendency of schools. Following that date superintendents soon were selected by most boards of education to assist them in conducting the schools. To this newly created office, however, boards of education were slow in delegating functions.

The earliest functions delegated to superintendents were those pertaining to instruction, such as the inspection and supervision of instruction, the making of courses of study, and the examining and classification of pupils. Business functions were assigned much later and more reluctantly than were educational functions. As communities grew and society became more complex, the business of education became larger and more intricate, and expenditures for education mounted. It was not long, therefore, until the business affairs of the school became too great to be handled by the members of the board of education; moreover, it was realized that many of the business functions as well as the educational functions required technical knowledge for their proper performance. The consequence was that business functions came in time to be delegated to superintendents of schools; still later, as education grew, definite business positions were created to take care of the constantly enlarging school business.

In recent years, because of the rapid development of education, the establishment of business positions in the schools has moved apace, and there are now few communities, particularly among those of a few thousand population, which do not have at least one employee giving full time to the performance of school-business functions. In fact, the part-time school clerk — the prototype of the full-fledged business executive — is ubiquitous. The first functions assigned to the clerk are the keeping of the financial records and accounts of the school. As the business of the school increases, other business functions are given him, the performance of which frequently requires all his time.

Considering their comparatively recent creation, it is not strange that business positions in the schools are still largely unstandardized and unprofessionalized. Like Topsy, these positions have "just growed," and the growing-up period has been very short; in fact, compared with the positions of superintendent, of principal, of teacher, the school-business positions are only in the childhood stage of their evolution. Let it not be forgotten that the positions of superintendent, of principal, and of teacher are much older than school-business positions. In the early days the former positions floundered in a sea of uncertainty; they were not standardized or professionalized. The experimental days of the superintendency, the principalship, and the teachership have been largely passed, and standardization and professionalization have emerged. For example, in the superintendency of schools the title of, the tenure of, the qualifications for, and the functions of the office have been standardized, which has brought about an improvement guided by the experience of thousands of communities over a long period of years.

Such standardization and professionalization, however, are only in their beginning in the business positions of the schools. For example, the title "Business Manager of Schools" connotes one thing in one community and something quite different in another community. In Chicago, for instance, the Business Manager of Schools, who is subordinate to the Superintendent of Schools, directs the administration of all the business affairs of the schools, including the keeping of financial records and accounts. In Cincinnati the school financial records and accounts are kept by the Clerk of the Board of Education, who is coördinate with the Business Manager; both in turn are coördinate with the Superintendent of Schools. In Denver the official who corresponds to the Business Manager in Chicago and in Cincinnati is known as the Chief Engineer.

What has been said regarding lack of standardization in such matters as title and functions is also true of other features of the position of school business executive. In practice there is yet no agreement regarding such matters as the best method of selecting this executive, the training which he should have, his salary, and his term of office.

The Superintendent of Schools as a Business Executive

Because of a lack of funds for maintaining a large organization, the smaller the school system is, the smaller the administrative organization which it can maintain. The Superintendent of Schools is the only executive whom small systems can afford. There he must administer, without assistance, the whole system, including both its educational and its business aspects; there he is monarch of all he surveys. As the system becomes larger, the creation of a larger administrative organization is, of course, more feasible. In unusually large systems the superintendent needs many assistants, each of whom directs the administration of a certain phase or phases of work, and who in turn have many subordinates. For example, Fig. 6, pp. 26–27, which shows the present business organization for the schools of Minneapolis, brings out the fact that the Business Manager of Schools in that city is an Assistant Superintendent of Schools. The business department, directed by one person, is divided into three bureaus, — administration, buildings, and physical properties, — each of which has a director. These bureaus, in turn, are divided into several divisions. For example, the Bureau of Buildings is divided into the following divisions: design and inspection, repair and maintenance, operation, transportation, cost-accounting, inspection, grounds, and storekeeping. Another glance at Fig. 6 will show that even these divisions are divided into several departments.

It is apparent, therefore, that the larger the system, the larger the organization which it is practicable to maintain. In large systems specialization of functions can be arranged for by giving to one person the performance of a specific task or tasks for which he has been especially trained.

The implications of the foregoing remarks are evident. If the schools are to function to their highest degree of efficiency, the chief executive of the schools, the superintendent, must have a considerable knowledge of the business side of school administration. In small school systems he must be trained to direct both the business and the educational functions; not only must he be a Jack-of-all-trades in school administration, but also, as far as possible, a master of all of them. In the larger systems the school superintendent must have a considerable knowledge of the business administration of schools; otherwise, he will not be so competent to select the chief business executive and to inspect and supervise his work. Whether the school system is large or small, the superintendent of schools is the generalissimo of its forces.

In brief, it may be said that future superintendents of schools must give more attention to the business side of their training. This does not mean that their *educational* training should receive less attention, but that their *business* training should be emphasized more. If this requires that more time be spent in college or the university, no objection can be raised, because from many angles the superintendency of schools is the most important position in any community. Suffice it to say that the school superintendent directs by far the largest and most important public enterprise. We have remarked before that more money is spent for education, more people are engaged in it, and more people are affected, directly or indirectly, by it than in any other undertaking of a public character.

Heretofore the business side of the superintendent's training has been greatly neglected. Small wonder then that school-board members frequently regard superintendents as experts in instructional matters, but look upon them as incompetents in business matters! Small wonder, in consequence, that these boards have delegated to the superintendents the running of the instructional side of administration and have reserved to themselves the running of the business side or have delegated it to business managers whom they have often made coördinate with the superintendent of schools!

Superintendents are not altogether to blame for their lack of training in business affairs, for where could they go for such training? Until recently courses in colleges and universities that were calculated to give a knowledge of the conduct of school business were unknown. Fortunately, though, these institutions are beginning to establish such courses. For example, a few universities have developed courses in school finance, school buildings, school equipment, school financial accounting, budgeting, and business administration of schools. It must be admitted, however, that the number of courses offered in business administration of schools and the number of institutions offering them are somewhat limited. Here is another opportunity for service on the part of the departments and colleges of education.

When a business training for superintendents of schools has been made available and has been taken advantage of, the superintendent will be accorded greater deference by the so-called hard-headed business man on the board of education. In consequence, his professional life will be more blissful, and, what is of greater importance, the schools will be conducted on a much higher plane of efficiency than ever before.

Qualifications of School Business Executives

A review of the importance, the size, and the complexity of the business functions of the schools will suggest the necessity for a professionalization of school business executives. In the first chapter these topics were discussed at considerable length. It was stated that the efficiency of the educational department is largely dependent on an efficient conduct of the affairs of the business department. It was also pointed out that approximately half the school revenue is used in performing business functions and that much technical knowledge is required to perform those functions in the most efficient manner. What then are the qualifications of the present business executives of the schools, and what should their qualifications be?

As regards the qualifications of the *chief* business executives, who are the only ones of the business executives upon whom data are now available, A. L. Heer[1] says:

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[1] *The Present Status of Business Executives in the Public Schools of the United States in Cities with Twenty-five Thousand or More Inhabitants*, chap. vi. Unpublished doctor's thesis on file in the Library of Ohio State University, 1926.

> The median number of years of schooling beyond the elementary school, which these specialists have undergone, is five. Approximately one executive in three has spent four years in college. Very few of them have taken special courses in college or university — courses that are calculated better to qualify them to perform the functions of school business executives.
>
> The most prolific source of supply for such executives is the school system itself; thus, teachers, principals, and school clerks are frequently made business executives. Accountants and building contractors are also frequently given the positions in question.

Thus it appears that specific preparation for the position of school business manager has been made by only a few of such officials. Practically all have been catapulted into their positions from another position in the school system or from some position in industry. Few of these executives have regarded specific preparation for their work as a sine qua non. Just as it was believed in the early days of the superintendency of schools that any good citizen who had a quantum of general knowledge and common sense could fill that position, so the qualifications for the school business managership are often regarded now.

The general point of view which should obtain with regard to school business executives is well stated by one forward-looking specialist:[1]

> Just as in earlier years the professionally-trained superintendent was needed to supplement the time and ability of the board, so the present requirement is that there shall be highly trained and capable specialists in various lines of administration to supplement the superintendent's ability, time, and authority even as he himself supplemented the board. May we not safely take the position that school business administration is the very chief of these special lines?

[1] W. N. Decker, "Relation of Business and Educational Departments in Local School Districts," *American School Board Journal* (April, 1926), Vol. LXXII, p. 51.

The school business executive should have not only a business training, but he should somehow secure an *educational* point of view. Just as many superintendents of schools are deficient in their knowledge of business, so many school business executives are deficient in their knowledge of education; too many of the latter know too little of the aims of education and the means of realizing those aims. Moreover, too many think that business administration exists only for itself and that its fundamental purpose is to keep down expenses. A school business executive who does not have the educational point of view often becomes a positive handicap in carrying out an educational program; he often sees only materials and machinery and cannot envisage efficient citizens in the making.

We are arguing, therefore, for a broad training for the school business specialist, just as we have argued for such training for the superintendent of schools. Securing this training by the apprenticeship method, as is done practically everywhere today, is a wasteful method. It wastes the time of the business executive, and, what is of greater moment, it wastes school funds. An untrained business specialist can hardly avoid making many mistakes — mistakes that are costly to the school system.

Selection of School Business Executives

Just as the superintendent of schools in all up-to-date organizations has for many years recommended for appointment all employees in the instructional department, so the tendency is to give him the power to recommend employees in the business department. The theory underlying this tendency is that the superintendent of schools has more time to study the qualifications of prospective employees, and because of his professional training he can appraise more accurately their qualifications than can school-board members. The school board should have, of course, as it should have with nominations for any position, the power to reject or to confirm any nomination that the superintendent makes; but if the board rejects a nomination, it should not substitute a candidate of its own choosing; rather it should ask the superintendent to make another nomination. A superintendent who cannot be trusted to make satisfactory nominations should be supplanted by one in whom the school board can place this trust.

In the selection of business executives the superintendent's chief responsibility, of course, will have been exercised with the selection of a business manager. Good administrative procedure dictates that to the business manager should be delegated the responsibility of recommending for appointment his subordinates; his recommendations should be made, of course, to the superintendent of schools, who has the power of rejection or confirmation. In any except the extremely small systems the superintendent of schools must delegate many functions. It is also his duty to inspect and supervise the labors of those to whom the functions have been delegated.

Contrary to present practice, which tends to select for the business-executive positions only those individuals who are local residents, business positions in the future will tend to be held by the best qualified persons whatever their residence at the time of selection. Fortunately the practice of selecting instructional employees (that is, such employees as superintendents, supervisors, principals, and teachers) from only the local community has almost passed into limbo. It will be a fortunate day for the schools when their business employees are selected only on the basis of qualifications — when residence, politics, and similar considerations are deemed extraneous. A tariff should never be levied upon brains; for public officials knowingly to engage in such practice is a species of malfeasance, which sooner or later will bring public condemnation.

Salary and Tenure of School Business Executives

Salaries of business executives should be commensurate with their qualifications and with the importance of the functions which they are expected to perform. Moreover, those who hold such positions, having been selected on a basis of qualifications, should have a secure tenure so long as they are efficient. The practice which obtains in many communities of changing employees when the personnel of the school board changes, or of changing for other extrinsic reasons, cannot be other than a handicap to the work. No person of intelligence and vision will prepare for or enter a profession when he knows that his services can be terminated for a specious reason.

SELECTED REFERENCES

HEER, A. L. *The Present Status of Business Executives in the Public Schools of the United States in Cities with Twenty-five Thousand or More Inhabitants*, chap. vi. Unpublished doctor's thesis on file in the Library of Ohio State University, 1926.

Discusses such features as title, selection, tenure and term of office, training, salary, and functions.

STEARLING, J. G. "The Function of the Business Manager in the Smaller Cities," *American School Board Journal* (July, 1922), Vol. LXV, p. 38.

Lists functions to be performed; says the business manager must be a Jack-of-all-trades.

WIVEL, C. B. "The Business Manager in the Public Schools," *American School Board Journal* (November, 1924), Vol. LXIX, pp. 39–41.

Recommends a unit type of organization; the duties and qualifications of a business manager are discussed.

"When Shall a Business Manager be Employed?" (Editorial), *American School Board Journal* (June, 1926), Vol. LXXII, p. 74.

Recommends that he be employed when an economy will result.

CHAPTER IV

MAKING THE SCHOOL BUDGET

A Budget Defined

Briefly stated, a budget is a systematized statement forecasting the revenues and expenses of an individual or an organization during a certain period of time. In school affairs this "certain period of time" is, so far as we have been able to ascertain, always a year. This year is known as the *fiscal* year, which is nothing more than an artificial division of the calendar for purposes of financial control. The fiscal year is not necessarily the same as the *school* year, although in most states it is the same. Stated otherwise, a budget is a financial plan for a definite period of time — a plan which, if ideally conceived, contains a well-formulated estimate of probable revenues and of probable expenses.

Reasons for Making a Budget

Few, if any, will dispute that a budget should be made and that it should be carefully made. The value of a budget for a city government has been set forth by Henry Bruère[1] in these words:

> It has compelled department heads in preparing their estimates to scan the activities of their departments, not sectionally or in general terms, but item by item, through the whole functional structure. It has served in a measure the purposes of a balance sheet, of an operating statement and of cost-accounting, by afford-

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[1] "The Budget as an Administrative Program," *Annals of the American Academy of Political and Social Science* (November, 1915), Vol. LXII, p. 180.

ing an opportunity to match results by expenditures, both by those responsible for obtaining results and by the appropriating authorities. It has revealed for the first time to the public the scope and range of city activities and has made it possible in many instances to prevent unwise expenditures by compelling a detailed justification of requests in advance of authorization.

Ex-Superintendent F. E. Spaulding,[1] of Cleveland, in discussing why a school budget should be made, has the following to say:

> The school budget is the most influential factor in educational procedure. It determines organization, methods, and results; the size of classes; means and materials of education; and educational values; in fact, no phase of education escapes the influence of the budget — whether a budget is made or not.

Most of us will agree with Spaulding that the school budget is "the most influential factor in educational procedure," and most will likewise agree that the making of a *good* budget is one of the most difficult and laborious tasks which a superintendent of schools, his coworkers, and his board of education have to perform. We do not wish, however, to give the impression that the task is bafflingly technical, for it is not. A knowledge of educational values, familiarity with the principles of budget-making, diligence, and common sense will enable one to perform the job very acceptably.

Fundamental Principles of Budget-Making

In the remainder of the chapter we will discuss briefly a few fundamental principles of school budget-making. These principles will be stated under the three divisions into which budget-making logically falls, namely, preparation, presentation and adoption, and administration.

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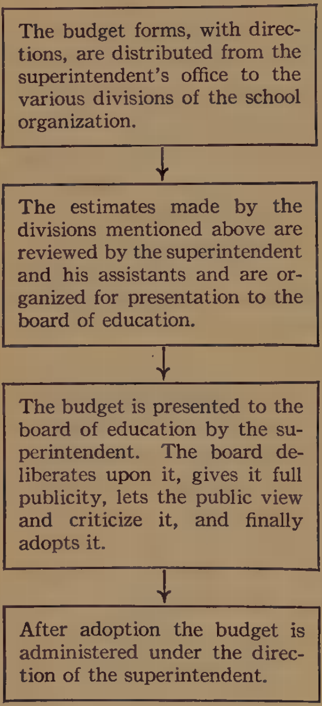
[1] "The Making of a School Budget," *School Review* (November, 1918), Vol. XXVI, p. 686.

Preparation

1. *There should be full coöperation between the board of education, the superintendent of schools, and his coworkers in preparing the budget.* The initiative should be taken by the superintendent of schools and his coworkers, leaving to the board of education the function of inspection and approval or disapproval. The necessity for adherence to this principle is fully comprehended when it is realized that budget preparation is a somewhat technical function — a function which laymen, such as the board members are, cannot perform without much help and advice. Moreover, board members do not have time to collect the many data necessary for effective budget-making. The superintendent of schools and his coworkers already know or can ascertain better than anyone else the needs of the schools. The board members, on the other hand, perhaps know better than anyone else the temper of the community, which will be called upon to furnish funds for financing the schools. Coöperation, therefore, between the board of education and the professional staff is imperative. Preparing a school budget is not a one-man job.



The budget forms, with directions, are distributed from the superintendent's office to the various divisions of the school organization.

The estimates made by the divisions mentioned above are reviewed by the superintendent and his assistants and are organized for presentation to the board of education.

The budget is presented to the board of education by the superintendent. The board deliberates upon it, gives it full publicity, lets the public view and criticize it, and finally adopts it.

After adoption the budget is administered under the direction of the superintendent.

FIG. 7. Suggested steps in the making of a school budget

Ideally, the estimates of the needs of the schools, including such items as supplies, apparatus, repairs, and personnel, would be formulated by getting the opinions of all assistants; that is, principals, heads of departments, teachers, and janitors. It is not necessary that the opinions of these assistants should prevail, but it is necessary that their opinions should be obtained. Procuring the estimates of these assistants is the first step — and, it may be said, one of the most important steps in budget preparation. These estimates should be passed up the line of organization, for review and approval purposes, to the chief executive officers and should finally arrive at the board of education, which sits as the court of final authority. The board of education, before making its decisions, should have detailed information from all possible sources. To procure for the board of education such information is one of the chief functions of the school superintendent and his coworkers.

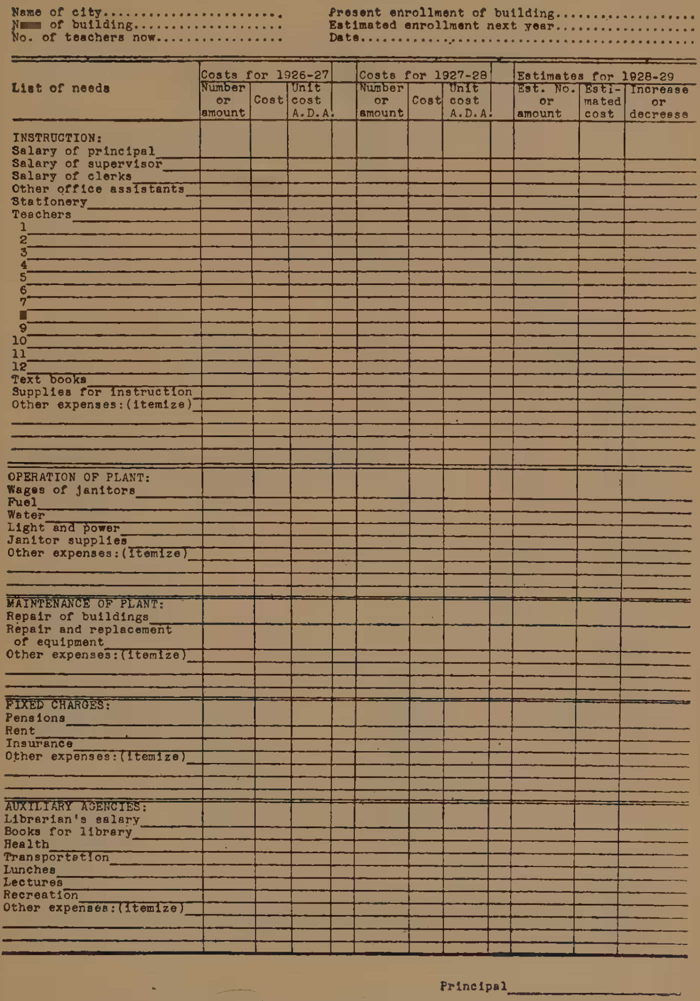
We are presenting in Fig. 8 a sample budget form which can be advantageously used by principals in presenting to the superintendent of schools the probable expenses of a school. Every school system should design and standardize the various budget forms which it deems it feasible to use. A suggestive set of such forms may be found in J. W. Twente's *Budgetary Procedure for a Local School System*, pp. 158–184. Budget-making authorities in the various sizes and types of communities may select whichever of these forms they think it practicable to use. The forms do not presume to be final or complete in every detail, but, as Twente says, they are more extended and inclusive than the forms which most school systems have at the present time.

Of course, if the school system is small — for example, one with a few teachers only, or one with one, two, or three buildings only — the superintendent will probably need but little help from his principals in compiling the budget; as the system grows, however, more and more reliance must be placed upon such assistants. Calling upon the principals and other teachers for budget data has two advantages: first, it secures necessary data, without which needs cannot be accurately determined; second, it gives such assistants a feeling of partnership and responsibility in this important work. If it is said that principals and other teachers are not qualified to make such estimates, the answer is that they *are* making them in various communities and many more *should be trained* to make them.

At least five bases should be utilized in estimating the needs of a school for any year. These are (1) expenditures for the present year and the preceding one or two years; (2) changes in the price of various materials, commodities, and services; (3) increase or decrease in school enrollment which may require increased or decreased expenditures for such items as personnel, housing facilities, equipment, and supplies; (4) any improvements calculated to beget a better educational product; (5) a critical examination of expenditures made during the current year to ascertain any wastes. When these five factors have been carefully noted, the estimates for the ensuing year can be set forth with some degree of accuracy.

2. *The budget should be inclusive and analyzed in detail.* Every item for which an expenditure is contemplated, even though the item be for only a few dollars, should be set down at least in the preliminary steps of preparing the budget. These items may, of course, be segregated under larger heads, such as those illustrated by Fig. 9.

Of course the budget could be merely a lump sum, — a vague estimate, — but such a budget is unscientific and its requests may be too large or too small. Before a reviewing agency or an adopting authority, such as the board of



Name of city........................
Name of building...................
No. of teachers now................

Present enrollment of building..................
Estimated enrollment next year..................
Date..

List of needs	Costs for 1926-27				Costs for 1927-28				Estimates for 1928-29		
	Number or amount	Cost	Unit cost A.D.A.		Number or amount	Cost	Unit cost A.D.A.		Est. No. or amount	Estimated cost	Increase or decrease
INSTRUCTION:											
Salary of principal											
Salary of supervisor											
Salary of clerks											
Other office assistants											
Stationery											
Teachers											
1											
2											
3											
4											
5											
6											
7											
[illegible]											
9											
10											
11											
12											
Text books											
Supplies for instruction											
Other expenses: (itemize)											
OPERATION OF PLANT:											
Wages of janitors											
Fuel											
Water											
Light and power											
Janitor supplies											
Other expenses: (itemize)											
MAINTENANCE OF PLANT:											
Repair of buildings											
Repair and replacement of equipment											
Other expenses: (itemize)											
FIXED CHARGES:											
Pensions											
Rent											
Insurance											
Other expenses: (itemize)											
AUXILIARY AGENCIES:											
Librarian's salary											
Books for library											
Health											
Transportation											
Lunches											
Lectures											
Recreation											
Other expenses: (itemize)											

Principal______________________

FIG. 8. Budget estimate of principal to superintendent

education, the council, the budget commission, the mayor, the legislature, or the public, an unitemized budget cannot be easily defended.

3. *The budget should be well proportioned.* We mean by "proportioned" that too large an expenditure should not be made for a certain item or items. Of course actual needs must be met, but as to what constitutes an actual need there is, and always will be, a difference of opinion; what is considered a need by one person is often deemed a luxury or an extravagance by another person.

One means of determining whether or not a budget is proportioned is to compare the percentages for the several items of the budget with the percentages for similar items in somewhat similar communities. It should be kept in mind, however, that a comparison does not necessarily establish an optimum practice; all that it does is to make us better acquainted with our practice and thus more competent to criticize our practice. A mere comparison never proves anything, and the majority opinion or practice is not necessarily right.

Data for comparative purposes — although they are usually a year or two out of date — may be secured from the following sources: (1) the annual statistical reports of the United States Commissioner of Education; (2) *Financial Statistics of Cities having a Population of over 30,000*[1]; (3) reports of the chief state school officials, which are published annually and distributed gratis by most states; (4) reports of the local superintendents and boards of education. If still more up-to-date data are desired, and if one does not hesitate to bother one's friends, a questionnaire may be sent to a selected list of similar communities requesting the data needed for comparative purposes. But let a questionnaire be used only as a court of last resort.

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[1] Published annually by the Bureau of the Census, Washington, D.C.

Generally speaking, that budget is best which gives as much as possible for instructional purposes and as little as possible for other things without, of course, lowering the efficiency of teaching. That the *one* purpose of any school expenditure is to make instruction possible should never be forgotten. If expenditures for noninstructional matters are large, the reason should be ascertained. Correct knowledge of these matters will frequently enable noninstructional expenses to be reduced.

4. *The budget should not be padded.* By this is meant that no more should be asked for than is actually needed. Some budget-preparing authorities believe in the theory that the proposed budget will be cut so much anyway; so they proceed to pad it to that amount. Such a policy, however, is not good business; in fact, it is not even *ethical* business. Budgets should be cut to the bone; then those who prepare them should be ready to take off their coats and fight for them if necessary. If one should lose in the fight, one retains at least one's self-respect, and that respect — although it may not finance the schools — is worth something. Moreover, if the budget is unceremoniously cut by those to whom it is submitted, the consequences will fall upon them. One may "get away" with a padded budget once or twice, but not for long. Mutual confidence must obtain between those who prepare the budget and those who adopt it. Padded budgets do not beget such confidence; on the contrary, they engender suspicion and distrust, for they exemplify unethical practice.

5. *Sufficient revenues should be listed.* This means that the various sources of revenues and the amounts expected from each source should be listed in the budget. It is incumbent upon those who prepare the budget to ascertain whether sufficient revenue is available to finance the projects suggested in the budget. Too many school authorities

think their function in budget-making is only to make requests; they do not consider it necessary even to suggest sources of income. Fig. 9 lists various sources of revenue. Of course, because of different state laws and local practices, such sources differ widely among the states and frequently even among communities of the same state.

6. *The budget should be made a few weeks before the beginning of the fiscal year.* Because the budget is fundamentally an estimate of prospective expenditures for a future period of time, and because this estimate is based largely upon expenditures of the present year and earlier years, it is desirable that the budget be made as near the beginning of the fiscal year as possible. On the other hand, the period between the presentation of the budget estimate and the beginning of the fiscal year should not be too short. There must be ample time for a thorough consideration of the budget by the regularly constituted legislative or reviewing body. There should also be sufficient time for giving it full publicity and for having public hearings upon it. If the period is too short, contracts will have been made and obligations incurred before the budget has been adopted; authorities are agreed that the practice of acting upon the budget after the spending period has begun is undesirable from the standpoint of the control of public funds. In other words, it is not good business to mortgage any funds until the funds have been regularly appropriated.

In theory and practice most communities consider that from sixty to ninety days is a sufficient lapse between the preparation and presentation of the budget and the beginning of the fiscal year.[1] In many states this period is fixed by law; for example, in Ohio the tentative budget must be prepared by June 15 and regularly adopted by July 1; the fiscal year, however, does not begin in Ohio until January 1.

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[1] J. W. Twente, *Budgetary Procedure for a Local School System*, pp. 13–14, 71.

Name of City -

Date -

I. RECEIPTS

Items	Receipts Last Fiscal Year (1927)	Receipts This Fiscal Year (1928)	Estimated Receipts Next Fiscal Year (1929)
1. Unencumbered balance			
2. Local-tax levy			
3. County-tax levy			
4. State-tax levy			
5. Section 16 and other permanent funds			
6. Depository interest			
7. Nonresident tuition			
8. Evening-school tuition			
9. Rentals			
10. Sale of sites, buildings, or supplies			
11. State aid for Smith-Hughes			
12. State aid for deaf			
13. State aid for blind			
14. State aid for crippled			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23. Miscellaneous			
Total			

	1927	1928	1929
Tax Duplicate	- - - -	- - - -	- - - -
Tax Rate for Schools	- - - -	- - - -	- - - -

Fig. 9. Suggested form for final school budget
For "Expenditures," see pages 54–55

II. EXPENDITURES

Items	Expenditures for 1927	Appropriation for 1928	Estimated Needs for 1929	Increase or Decrease of 1929 Request over 1928		Percentage Increase or Decrease
				Increase	Decrease	
1. General Control						
a. Board of education — secretary's office						
b. School census						
c. Operation and maintenance of general offices						
d. Salary of superintendent of schools						
e. Salary of superintendent's clerk						
f. Enforcement of compulsory-education laws						
g. Expense fund						
h.						
i.						
j. Other expenses of general control						
Total expenses of general control						
2. Instruction						
a. Salaries of supervisors of grades and subjects						
b. Other expenses of supervisors						
c. Salaries of principals and their clerks						
d. Other expenses of principals						
e. Salaries of teachers						
f. Textbooks						
g. Stationery and supplies used in instruction						
h. Commencement						
i.						
j.						
k. Other expenses of instruction						
Total expenses of instruction						

II. EXPENDITURES (Continued)

Items	Expenditures for 1927	Appropriation for 1928	Estimated Needs for 1929	Increase or Decrease of 1929 Request over 1928		Percentage Increase or Decrease
				Increase	Decrease	
3. Operation of School Plant						
a. Wages of janitors and similar employees . .						
b. Fuel						
c. Light and power						
d. Janitor's supplies						
e. Care of grounds						
f.						
g.						
h. Other expenses of operation of plant . . .						
Total expenses of operation of plant . . .						
4. Maintenance of School Plant						
a. Repair of buildings						
b. Repair of grounds						
c. Repair and replacement of equipment . . .						
d.						
e.						
f. Other expenses of maintenance of plant . .						
Total expenses of maintenance of plant .						
5. Fixed Charges						
a. Teachers' retirement						
b. Workmen's compensation						
c. Building insurance						
d. Rent						
e.						
f.						

II. EXPENDITURES (CONTINUED)

ITEMS	EXPENDITURES FOR 1927	APPROPRIATION FOR 1928	ESTIMATED NEEDS FOR 1929	INCREASE OR DECREASE OF 1929 REQUEST OVER 1928		PERCENTAGE INCREASE OR DECREASE
				Increase	Decrease	
g. Other fixed charges						
Total expenses of fixed charges						
6. DEBT SERVICE						
a. Payment of bonds (direct)						
b. Payment of bonds (sinking fund)						
c. Redemption of short-term loans						
d. Interest on bonds						
e. Interest on short-term loans						
f.						
g.						
h. Other expenses of debt service						
Total expenses of debt service						
7. CAPITAL OUTLAY						
a. Land						
b. New buildings						
c. Alteration of old buildings						
d. Equipment of new buildings and grounds						
e. Equipment of old buildings exclusive of replacement						
f.						
g.						
h. Other outlay expenses						
Total expenses of outlays						
8. AUXILIARY AGENCIES AND MISCELLANEOUS						
a. Libraries						

II. EXPENDITURES (CONTINUED)

ITEMS	EXPENDITURES FOR 1927	APPROPRIATION FOR 1928	ESTIMATED NEEDS FOR 1929	INCREASE OR DECREASE OF 1929 REQUEST OVER 1928		PERCENTAGE INCREASE OR DECREASE
				Increase	Decrease	
(1) Salaries						
(2) Books						
(3) Other expenses						
b. Promotion of health						
(1) Salaries						
(2) Other expenses						
c. Transportation of pupils						
(1) Salaries						
(2) Other expenses						
d. Board and lodging of pupils in lieu of transportation						
e. Provision for lunches						
f. Recreation and playgrounds						
g. Social centers						
h. Indigent children						
i. Pupil tuition						
j.						
k.						
l. Other expenses of auxiliary agencies etc.						
Total expenses of auxiliary agencies etc.						
Grand total						

As to when the fiscal year now begins, and as to when it should begin, there are various practices and opinions. According to Twente, July 1 is the most popular date, thirty states using it. Other dates used, but by one or two states only, are January 1, August 1, September 1, December 1, the third Monday in June, and the first Monday in July. A few states do not prescribe the date of beginning.[1]

Twente, who has probably done more research than any other individual on what is, and what ought to be, in school budgeting, recommends that all communities make July 1 the first day of the fiscal school year. He states the following reasons for suggesting that date:[2]

> (1) In 30 of the 48 states, the fiscal school period begins July 1; (2) in 59 per cent of 363 cities with a population of 8000 and over, the initial date of this period is July 1; (3) this date conforms with the fiscal year of the Federal Government; (4) the budget would cover an unbroken period of the school year; (5) the legislative body for the school system meets frequently and can consider a proposed budget at any time that it is presented; (6) any compilations that may exist at the present time, due to the difference in the date on which the fiscal year begins, in the compilation of comparable statistics, could be eliminated. All school systems make reports to the Federal Government for certain fiscal periods and if the dates are identical, all data could be comparable without any adjustments. In the *Financial Statistics of Cities*, issued by the United States Census Bureau, it is stated that legislation making July 1 the beginning date for all fiscal periods cannot be too strongly urged. Also, July 1 comes after the close of the scholastic year so that all expenditures for the whole year as a unit can be estimated, holding the same executive and board of education accountable, whereas, if the budget covers part of two years, there may be two administrative policies which share in the financial transactions of such budgetary period. Political facts, such as the time of the incoming legislative body and the time of the revenue

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[1] J. W. Twente, *Budgetary Procedure for a Local School System*, p. 13.

[2] Ibid. p. 70.

income, may in some governmental units determine when the fiscal year shall begin, but for school purposes, practice favors July 1.

Although the hard work on the budget must be done a few days or a few weeks before it is definitely presented, budget-making is a never-ending function. As soon as the budget for the next succeeding school year has been adopted, preparation of that for the following year must be started. Many school officials file all budget material in one special place as it comes to hand; such an arrangement is an assurance that nothing will be forgotten when the time comes to organize the budget for presentation.

Presentation and Adoption

At some time before its final adoption the budget should be presented to the public for the inspection and criticism of anyone interested. The theory underlying this recommendation is that the budget is a matter of great public interest, and, therefore, the criticisms and suggestions of the public ought to be considered. That this is good theory no one will dispute; it is, however, an unfortunate commentary that the general public does not seem to take much interest in budget-making. For example, the Ohio laws provide that a public hearing, which hearing shall have been duly and properly advertised, shall be held on the tentative budget. Now, how many people attended these hearings on a recent — the 1927 — budget? Data which we have collected show that in more than 90 per cent of the school districts of Ohio not even one person came to these hearings. When the public was represented, it was to the extent of one, two, three, or four people only. Let us hope that a greater public interest in these matters can soon be cultivated.

It is the duty of the superintendent of schools and his board of education to present the budget in such a way that it will pass through the hands of the budget commission, the council, the mayor, or any such reviewing authority, with as little change as possible. The extent to which a budget is passed without change is an excellent index of the efficiency of the superintendent and board of education. Of course if the budget has been carefully and scientifically prepared, its presentation will be much easier, and its chances for adoption, either in whole or with little change, much greater. Assuming that the primordial principle of correct preparation has been satisfactorily observed, there are two additional major principles to be kept in mind in the presentation.

1. *Every request should be justified.* This means that the reason or reasons for every increase in the respective items should be given. Conversely, if there is a decrease in the requests for a given item, the reason or reasons therefor should be set forth.

Moreover, the reasons given for the various requests should be stated in such a manner as to enable those who finally adopt the budget to *rank* the relative urgency of the several requests, for needs are always relative. The adopting authorities will frequently be unable to grant sufficient funds to care for all items, and in such event they must have information which will readily enable them to eliminate the least important items. *Adopting authorities should never eliminate items from a budget until those who originally prepared the budget have been consulted.*

Arguments for the several requests should be presented briefly in writing and should be as quantitative as possible; facts are more convincing than mere opinion. Merely to place the arguments in *writing*, however, will seldom be adequate. Personal conferences between the superintendent, the board of education, the council, the budget commission, or any similar reviewing body are frequently necessary, and always advisable, if the schools are to fare as they should in the distribution of public funds. Because other tax-spending agencies, as well as the schools, are usually competing for funds, eternal vigilance is frequently the price of the schools receiving their necessary share. An intelligent, altruistic superintendent will neither attempt to "hog" the public revenues nor be mealy-mouthed or supine in seeing that the schools are treated justly. In some communities the school authorities and the other tax-spending agencies have for years been conferring together and amicably adjusting their budget differences. There is no reason why this spirit of coöperation and altruism should not generally prevail.

2. *Full publicity should be given the budget.* A frank and clear statement of school needs will tend to beget public confidence and to disarm criticism in advance. Perhaps, notwithstanding the almost total lack of interest at present, within a few years the public can be educated to take a greater interest in so important a public matter as budget-making. With an informed, sympathetic, and aroused public supporting a budget request, the request can hardly fail. It is possible to present these matters to the public in such a way that their interest will be aroused. Newspapers are usually glad to publish as news a summary of the school budget.

Administration

Two major principles should be kept in mind in administering the budget.

1. *It should be followed.* This means that the budget must be binding on the administration in at least the major items for which definite amounts have been appropriated. Unless these appropriations are followed in as large degree as possible, of what use is a budget? This, however, does not

mean that the budget must be slavishly conformed to, irrespective of needs. Although needs may have been prophesied with the utmost care, miscalculation may arise which will require readjustments. For example, an unusually long and cold winter may require an extra large expenditure for fuel; a fire, a tornado, or a flood may necessitate large and unforeseen repairs; the cost of some items may increase or decrease radically within a few months. These conditions cannot be foretold or controlled by human minds or hands. When they do arise they must be met, often by a transfer from one fund to another. The budget laws of most states permit such a transfer either by specification or implication, provided such transfer does not violate an outstanding contract or obligation. The ideal budget, of course, is one whose expenditures and income balance at the end of the fiscal year. A large surplus is almost as undesirable as a large deficit; the people should not be requested or required to furnish funds until they are needed.

Some boards of education carry in every budget a reserve balance to draw upon when emergencies, such as those mentioned, arise. This surplus varies in practice from 1 to 15 per cent. The Ohio laws permit boards of education to carry a reserve balance equal to 10 per cent of the estimated expenses. Unless this reserve is needed at some time during the current fiscal year, it goes into the funds available for the next fiscal year.

Advantages in carrying a small reserve of from 1 to 5 or 10 per cent of the estimated expenses are evident. The dangers of carrying such reserve are, first, that it may become an excuse for less careful estimating of needs, and, second, that it may encourage extravagance. It cannot be contradicted that the presence of unexpended funds near the close of a fiscal year would tempt some school officials to make unnecessary expenditures.

2. *There should be a definite and systematic check upon expenditures to see that they do not exceed the appropriations.* The necessity for attending to this becomes more evident when we recall that in a few states boards of education are personally liable for spending more than has been appropriated and for which funds are available. To guard against any breaking of the law, and as a principle of good business, a financial-accounting scheme should be introduced which would facilitate the checking of expenditures, outstanding orders, and obligations with appropriations and revenues. These checks should be made at least monthly. If ideal conditions are present no contract or obligation will be entered into until the financial records have been consulted to see whether or not there is an unencumbered balance sufficient to meet such contract or obligation.

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CHAPTER V

PROCURING REVENUE FOR THE SCHOOLS

Necessity for Adequate Revenue

The efficiency of any organization is determined largely, if not chiefly, by the adequacy of the financial support which is given the organization. So it is with the schools. The schools cannot be financed out of the air nor on the good wishes of their friends. There is an old saying that "money makes the mare go"; likewise it may be said that money makes the schools go.

In Chapter III it was remarked that the personnel of an organization determines largely the efficiency of the organization. Needless to say, an efficient teaching and administrative personnel cannot be procured unless the members of it are paid adequate salaries. If the schools expect to procure, to retain, and to make happy a qualified personnel, they must compete for such with other businesses, trades, and professions. Moreover, adequate buildings, equipment, and supplies must be provided. None of these materials and services can be furnished without ample funds.

A review of the history of education makes evident that certain features of the schools have always been adversely criticized to a certain extent. Modern critics of the schools affirm that teachers are inadequately trained and inexperienced, that classes are too large for effective work, that too narrow and too formal a curriculum is offered, that buildings are inadequate and unsanitary, that supplies and equipment are insufficient and not of the best quality, and that the administrative and supervisory force is not competent. That there is some truth in these criticisms must be admitted. The schools have many weaknesses, as they have always had; they do not claim to be perfect, and probably they will never be perfect.

In spite of these criticisms it cannot be gainsaid that improvements in all phases of school work are being made. The shortcomings of the schools are being constantly corrected. When they are corrected they are usually accomplished by the expenditure of more money. Better-qualified teachers, more adequate buildings, better equipment and supplies, and many other improvements are being constantly secured. For these improvements more money is usually necessary. In any attempt to improve the schools the first thing to observe is whether more adequate financial support is necessary.

The Present Financial Stringency

Although the present financial stringency, about which so much has been said recently, is probably more acute than former stringencies have been, the present is by no means the first. A review of the history of education evinces that revenue for any public function has always been somewhat difficult to procure. It has never been easy to "pluck the goose without making it squawk."

Generally, before the public has been willing to grant funds for any purpose, it has demanded that the necessity for the funds requested be proved. We are not bewailing this practice of the public; we are merely stating that such practice obtains. Indeed, the practice of the public of keeping its purse strings taut is a meritorious practice, for, if it did not do so, a saturnalia of extravagance would likely be encouraged on the part of public officials. It should not be forgotten that the public seldom has sufficient funds to meet all requests that are made. At any given time the public has only a certain amount of money which it can devote to governmental functions; this being the case, it must make such amount go as far as possible. Since the public must pay the taxes, it is the prerogative of the public to decide which governmental functions shall be financed and which shall not be financed; likewise it is the right of the public to determine the degree of financial support which it will give to any function. On such matters the intelligence and good will of the public must be trusted by public officials. In a democracy the people are sovereign, and nowhere is this more true than in taxation. The failure to receive ample revenue is often due to the failure of school officials to prove to the public the importance of education, the need of increased revenue to finance education, and the ability of the public to supply the revenue.

The Mounting School Costs

During recent years much has been written and spoken concerning the mounting school costs. The proponents of low tax rates, and persons who are lukewarm toward public education, have been particularly active in collecting and in disseminating data which show the increasing school costs. Such persons have viewed with alarm the mounting costs. These persons, however, are not the only ones who have viewed with alarm these mounting costs. Many of even the staunch friends of education realize that the securing of ample revenue for the schools is becoming a stupendous problem; many freely admit that they are perplexed over the solution of the problem. They do not know how much longer the increases in school costs will continue and whether the public will care to continue to pay them.

The total expenditures in the United States for public elementary and secondary education increased from $63,396,666 in 1870 to $78,094,687 in 1880, to $140,506,715 in 1890, to $214,964,618 in 1900, to $426,250,434 in 1910, to $1,036,151,209 in 1920, and to $1,949,701,905 in 1924. Estimates of expenditures for similar purposes for the year of writing (1927) place the total at approximately $2,500,000,000.

Not only have the total expenditures increased by leaps and bounds during recent years, but the per inhabitant expenditures have also rapidly increased. The per inhabitant expenditures, however, have not increased quite so rapidly as total expenditures. The per inhabitant expenditures increased from $1.75 in 1870 to $1.56 in 1880, to $2.24 in 1890, to $2.84 in 1900, to $5.15 in 1912, to $9.80 in 1920, and to $14.47 in 1922. It cannot be denied that these increases are huge.

To give only the figures showing the mounting school costs tells, however, only one side of the story. To fail to tell the other side of the story places the schools, at least with the uncritical, in a false light. The other side of the story — the side which is not always told, particularly by those who are lukewarm toward public education — has to do with the explanations for the mounting school expenditures.

There are three explanations for the mounting school costs. These explanations are (1) an increase in enrollment, particularly in the high school, where education is much more expensive; (2) a decrease, particularly in recent years, in the purchasing power of the dollar; and (3) a growing insistence on the part of the public that the quality of education be improved and that the amount of education given to the typical individual be increased. All friends of public education should be fully informed of these facts.

During recent years the educational literature has contained an abundance of data showing the effect of each of these factors on school expenditures; since these details are readily available elsewhere, they will not be repeated here.[1] Suffice it to say that the increase in school enrollment and the decrease in the purchasing power of the dollar account for approximately one half the increase in expenditures. The remainder of the increase must be explained on the basis of the betterment of the quality of education and the giving of a larger amount of schooling to the typical individual.

The facts show, moreover, that in terms of actual wealth the public has tended to finance its schools better and better as the years have gone by. School expenditures have increased particularly rapidly during the last decade, much more rapidly than actual wealth has increased.[2] The people of the United States in 1870 spent $2.87 per $1000 of wealth for public elementary and secondary education; in 1880 they spent $1.79; in 1890, $2.16; in 1900, $2.43; in 1912, $2.59; and, in 1922, $4.93. Thus the increasing faith of the American people in education is further demonstrated.

Meeting a Financial Stringency

The limits which have been set for this chapter will not permit an exhaustive treatment of the question of school revenue with its many socio-economic ramifications and implications. Space will not permit a discussion of such questions as the equalization of educational opportunity, and the merits of different forms of taxation for the raising of school revenue. These questions, though questions of large moment in school administration today, will have to be treated in other works. The reader who is interested in such questions will find in many volumes on public finance and taxation a satisfactory treatment. This chapter essays to give suggestions on how to finance the schools under *present* taxation laws; particularly does it essay to give suggestions on how to meet a financial stringency, — a condition which many school systems now unfortunately face. Apropos of meeting such a stringency, three suggestions are made: (1) effect all economies possible; (2) see that all moneys to which the schools are entitled come in; and (3) procure additional revenue.

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[1] For a brief discussion of the trends of school costs in each state for each decade from 1870 to 1922 and an explanation for the increase, see W. G. Reeder's article "Trends of State and National Expenditures for Education in Terms of Wealth," in the *American School Board Journal* (August, 1926), Vol. LXXIII, pp. 43–45.

[2] For facts on school costs compared with economic resources, see "Ability of the States to support Education," *Research Bulletin* of the National Education Association (January, 1927), Vol. V, pp. 7–29.

1. *Effecting All Economies Possible*

Before school officials are justified in asking the public for more revenue they should assure the public that all funds which the public is furnishing are being expended without waste. Admittedly, to administer the schools without waste is a large task, for innumerable opportunities for waste exist. In Chapter I it was pointed out that education is by far the largest public business. It was stated that more money is spent in education, more people are engaged in it, and more people are affected, directly or indirectly, by it than is true of any other public business. Still more, it was avowed that the business of education is extremely technical and complex, and that probably no other public business presents so many opportunities for waste.

Waste in the administration of the schools was never condonable. At present it is especially necessary that all waste be eliminated before the public can be expected to grant more funds. The public is scrutinizing more closely than ever the efficiency with which its money is being spent. If the elimination of waste does not leave ample funds for the schools, the public stands willing and ready to furnish more funds; the elimination of waste is, however, a first prerequisite to the receiving of more funds.

In attempting to economize, false economies should not be mistaken for real economies. If the efficiency of instruction is impaired by an attempt to economize, such attempt constitutes a false economy. When, however, a saving is made and the efficiency of instruction is not impaired, there is a *real* economy.

In establishing goals for which the schools should strive the school administrator must keep in mind relative values. Manifestly the schools cannot expect to procure sufficient funds to do all that they might do. The educational millenium is not so close at hand. The school-administrator faces always the necessity of having to "cut the cloth to suit the garment"; he has only a given amount of money to spend on the schools, and he must spend it on the most important things.

To know what the most important things are the school-administrator must forever be a critical student of values. Even retrenchment, bad as it is, will often be necessary. Certain features of the schools will often have to be eliminated; they must be eliminated, not because they have *no* value but because they have *less* value than other features.

2. *Seeing that All Moneys Come In*

Each state has provided, either in its constitution or its statutes, for certain revenues for the schools of every community. It is the obligation of school officials to see that all moneys to which the schools are entitled come into the school coffers. If any of the funds to which the schools are entitled do not come in, the children of the community are cheated of some of their rightful patrimony.

School revenue in the several states is procured from three sources. The first source, which we may call *incidental*, includes such moneys as the interest on bank balances, tuition receipts from nonresident pupils, delinquent taxes, and rentals. In the typical school district this source usually accounts for less than 5 per cent of the revenue.

A second source is *Federal, state,* and *county aid.* It seldom accounts for more than 10 per cent of the total revenue of the typical community. In many states the percentage that comes from such source is less than 5. The tendency, however, in both theory and practice is to increase the percentage of the school funds which are furnished by the state and the county. Indeed, next to the demand for a larger amount of school funds, the demand for an equalization of educational opportunity has been preëminent in school finance during recent years. Equalization of educational opportunity is being effected by the furnishing of a larger amount of state and county aid to the local school district.

The third source of school revenue is *local taxation.* This is by far the largest source; in most states it accounts for by far the major portion of the revenue of the local school district. Although the contributions made by the states have been much larger during recent years, school costs have increased so much that the percentage contributed by the state has tended to decrease.

Interest on bank balances. The statutes of all states provide that school districts shall receive their money from the tax collections either once or twice each year at a stipulated time or times. Since taxes are usually paid twice a year, most states make the distribution of tax money twice a year. Since the money thus received is not spent immediately by the school district, but is disbursed as it is needed, the school district usually has at any time a balance of several thousand dollars. In a city of approximately one hundred thousand population, shortly after a semiannual tax distribution, the schools will have a fund of approximately one million dollars. The amount of the bank balance will depend, of course, upon the size of the system and the amount of the original collection. Whatever the amount of the balance is, it should be properly deposited in a bank so that it will be in safe keeping and will produce interest. In the larger school systems the interest on the bank balance amounts annually to several thousand dollars.

During recent years practically all the states have passed laws governing the handling of public funds of all kinds. In former days, when there were no such laws, public officials frequently used the funds for their own emolument. In those days public officials frequently lent the funds to banks or to private enterprises and retained the interest instead of putting it into the public coffers; what is even more heinous is the fact that the principal as well as the interest was often lost. Today, however, the laws of all states demand a more strict accounting of public funds. The laws now require public officials who have public funds in their charge to select a depository for such funds. These laws usually specify that a depository or depositories shall be selected on a competitive basis and that the depository which offers the highest rate of interest, safety and other things pertaining to the funds being equal, shall be given the custody and temporary use of the funds. The laws also stipulate that depositories for public funds shall give adequate bonds guaranteeing the safety of the funds.

In selecting a depository for school funds, just as in making a private investment, three aims should be kept in mind. These are (1) to secure the highest rate of interest possible, (2) to have absolute safety of the funds, and (3) to be able to secure the funds when they are needed.

A depository should be selected on a basis of competition. The competition should be so organized as to stimulate bidding on the part of all banks that might be interested in acting as depositories. Newspapers and circular letters are excellent ways in which to advertise the competition. The object should be to procure as high a rate of interest as possible. Absolute safety of funds should, of course, be the first consideration. Public funds should not be placed in an irresponsible bank, even though the bank might offer a high rate of interest. It would be well to enter into a written contract with each depository. The following is suggestive of what such a contract should contain:

CONTRACT FOR DEPOSITION OF SCHOOL FUNDS

WHEREAS, the Board of Education of ________________ ________________ School District, ____________________ County, State of ________________, did on the ________ day of ______________________, 19___, accept the proposal of the ____________________ Bank of ____________, ____________, to receive and safely keep on deposit the funds of said School District, and to pay interest thereon at the rate of ___ per cent per year on the average daily balance, and WHEREAS said Bank has given to said Board of Education a good and sufficient bond in the sum of ________________ dollars, it is therefore agreed between said Board of Education and said Bank that funds of said School District to the extent of not more than ________________ dollars shall be deposited in and safely kept by said Bank, from and after the ______ day of ____________, 19___, for the period of _______ year(s). Payments shall be made from said funds only as directed by the orders, checks, or drafts drawn or signed by the proper officers of said Board of Education, and as provided by law.

Interest shall be paid upon all said deposits from the time they are made, at the rate of ____ per cent per year, on the average daily balances for the full time said funds are on deposit, and the accrued interest shall be credited to the funds on the first day of January and July of each year.

IN WITNESS WHEREOF, the parties have hereunto set their names, this _____ day of _____________, 19___.

____
President of Board of Education

____
Clerk of Board of Education

____
President of Bank

____
Cashier or Secretary of Bank

Before public funds are deposited in a bank, the bank should be required to give an ironclad bond guaranteeing the safety of the funds. Herewith is reproduced a bond form which may be readily modified to meet the needs of the typical school district:

BOND FOR DEPOSITORY FOR SCHOOL FUNDS

KNOW ALL MEN BY THESE PRESENTS, that the _____________
Name of bank
____ as principal, and ___________________________________
Names of sureties
as sureties, are jointly and severally bound unto the Board of Education of the __________________________ School District, ____________________ County, ______, in the sum of _____ ______________ dollars, ($___________), for the payment of which the said ___________________________________
Name of bank
and ____
Names of sureties
above named, do bind themselves, their successors and assigns.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the said ____
Name of bank

has been duly designated and approved as a depository for the purpose of receiving on deposit funds of the Board of Education of the said School District,

AND WHEREAS, the Board of Education of the -------------
------------- School District has duly selected and designated
-------------------------------------- as a deposi-
Name of bank
tory, and has agreed to deposit with said bank, from time to time, the public moneys of the school district, and in accordance with the law has required of the said ---------------------------
Name of bank
a bond to be executed and deposited with it, with surety thereon, and conditioned as required by said board,

NOW THEREFORE, if the said ---------------------------
Name of bank
shall pay over to the said Board of Education for the use of said school district, upon demand made therefor, or upon the written order of said board, any and all moneys which now are in the custody of said bank belonging to the said school district or which from time to time hereafter may come into the custody of such, the -------------------------- under and by virtue of said
Name of bank
provisions of law, free from any discount or deduction of any kind therefrom, and shall further pay to the said Board of Education for the use of the school district, interest upon the daily balances on such deposit or deposits, at the rate of ------ per cent per year, payable at the time specified by said board without demand therefor, and shall do each and every act as required of such depository by the provisions of law or the resolution of such board, and shall save the Board of Education from any loss whatsoever upon such deposit or deposits made with the said ----------------------.
Name of bank
and if the said ---------------------------------- shall
Name of bank
pay to and settle with the Board of Education the amount due in full (including interest) to the Board of Education from said
------------------------------ whenever such -------
Name of bank
----------------------------- has failed, refused, or neg-
Name of bank

lected to pay over to the Board of Education any and all moneys which may be in the custody of said ______________________
Name of bank
belonging to the school district and covered by this bond, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

IN WITNESS WHEREOF, The ____________________________
Name of bank
as principal, and ____________________________________ as
Names of sureties
sureties, have caused this bond to be signed by the proper officers of such bank, and such sureties, this _______ day of _______ ________________, 19___.

The________________________
Correct legal title of bank

By __________________________, *President*
_______________________, *Secretary or Cashier*
______________________________, *Surety*
______________________________, *Surety*
______________________________, *Surety*

Tuition money from nonresident pupils. The laws of most states provide that pupils who attend school in a district other than their home district shall pay their own tuition or have it paid by their home school district. Most states have enacted laws providing for the transfer of pupils from one school district to another district when the educational needs or conveniences of pupils can be better met in such other district; these laws generally provide, moreover, that the tuition of such pupils shall be paid by the home district.

In many school districts the money received from tuition for nonresident pupils amounts to a considerable sum; this is particularly true of districts that maintain high schools. It frequently happens that high schools, particularly the rural high schools, secure a large percentage of their students from neighboring school districts. The tuition money which these students bring to the local school district often goes far toward financing the school. The laws of most states provide that the actual cost of educating a pupil in the school shall be charged those pupils who are transferred. A few states rightly provide that in estimating the per pupil cost of education a charge may be made for interest on capital outlay and for depreciation. Ohio, for example, permits boards of education to charge 5 per cent interest and 5 per cent depreciation on capital outlays. The laws of a few states are still archaic in that they provide for a flat tuition rate of four, six, or eight dollars per month. Obviously a flat rate does not have the merit of the actual-cost charge. A flat rate may be either too large or too small; in these days of rapidly increasing school costs it is generally too small.

School districts which provide school advantages for pupils from other districts should make sure that all tuition money from such students reaches the school coffers. Since, in the typical community, the per pupil cost of elementary education is now approximately seventy-five dollars annually and for high-school education approximately one hundred dollars annually, any failure to collect from all nonresident pupils results in a considerable loss to the school district which furnishes educational advantages for pupils from other districts. It is a good plan for principals and teachers to secure the residences of all pupils and to report to the central office the names of those pupils who are not residents of the local school district. With the names of such pupils available, steps can be taken to collect the tuition money.

Delinquent taxes. Each year, in most communities, many people fail to pay their taxes; in other words, for some reason or other, people permit their taxes to become delinquent. If the school budget is made on the assumption that all taxes will be paid, failure on the part of any persons to pay their taxes results in an inconvenience to the schools. If the amount of delinquent taxes is more than the board of education has estimated, there will be a deficiency of funds. In such situation, unless economies or retrenchments can be made, money must be borrowed to take the place of the delinquent taxes in carrying out the educational program which was projected in the original budget.

In order that a public work shall not be handicapped, most states provide that when delinquent taxes are paid they shall go to the governmental function that was entitled to them when they were originally levied. Such delinquent taxes, however, frequently do not reach the source which the laws intend that they should reach; they frequently go to some governmental function not entitled to them. It is the obligation of school officials to see that any delinquent taxes to which the schools are entitled come into the school funds.

In making a school budget for any year school officials should carefully estimate the probable amount of delinquent taxes during that year. They can form a fairly accurate estimate of such amount from the amount of delinquent taxes during former years and by considering present economic conditions in the community. If economic conditions are not as healthy as they have been in former years, more delinquent taxes should be expected than in previous years. Hard times make it difficult or impossible for many people to pay their taxes.

Under the captions of "Interest on bank balances," "Tuition money from nonresident pupils," and "Delinquent taxes," the chief incidental sources of school revenues which are available in the typical community have been discussed. In addition to these incidental sources many similar sources are occasionally provided; these, however, produce much less money than the incidental sources previously mentioned. Chief among the incidental sources of a minor and miscellaneous nature are license fees, poll taxes, and rentals.

Federal, state, and county aid. Most states have a permanent school fund which has its source largely in Federal land and money grants. The history of these grants constitutes one of the most interesting and significant chapters in American education. Unfortunately the limits of this book do not permit a review of these grants. Suffice it to say that in some states, particularly in the Western states, the permanent school fund produces a considerable percentage of the revenue expended annually by the schools. The Federal laws which provided for the original grants, or succeeding state laws, stipulate that each school district is entitled to its share of the income produced annually by the permanent school fund. In spite of there being better bases of distribution, in most states the annual income of the fund is still distributed on a pupil-census basis. Whatever the basis of distribution is, each school district should assure itself that it is receiving the amount to which it is entitled; even state superintendents of public instruction and state auditors occasionally make mistakes in distributing the income from this fund. If the basis of distribution is a pupil-census basis, it is the obligation of the community to provide for an accurate pupil census; failure to enumerate a pupil means in some states a loss to the school district of several dollars annually.

The school district should make sure that it is receiving all state and county funds to which it is entitled. County and state aid may be classified into two divisions — *general* aid and *special* aid. General aid is given to the district to use in any legitimate manner in which the district may care to use it. Special aid, on the other hand, is given for a special purpose; for example, school libraries, teachers' salaries, health education, teachers' institutes, departments of home economics, departments of agriculture, departments of industrial education, transportation, high-school departments, instruction of the blind or of other atypical children, and school buildings. Such aid may be used only for the purpose for which it is given.

The tendency everywhere in both theory and practice is to equalize educational opportunity by giving larger amounts of state and county aid. Efforts are being everywhere made to place less of the burden of financing the schools upon the local community and to place more of it upon the state and county. At present the typical state appropriates several million dollars annually for the equalization of educational opportunity. As has been remarked, this money is distributed to local communities either for general educational purposes or for special purposes. It is the obligation of school officials to be cognizant of all provisions for state and county aid and to see that their districts receive all aid to which they are entitled. In addition to giving general aid, many states provide special aid for a score or more of special projects. Unless school officials are familiar with the state laws, much of the aid to which their districts are entitled may not be forthcoming.

Increasing the proceeds from local taxation. It has already been stated that local taxes furnish by far the major portion of the school revenue. Moreover, in all states of the Union the property tax is still the chief form of taxation. C. C. Plehn[1] says:

> Among all of these sources of revenue the general property tax stands preëminent. It is the structural iron which holds the building together. It is the largest single source of revenue and is universally regarded as preëminently *the tax* for all purposes. There is no state in the Union in which the tax does not exist, at least as a tax for local purposes, although there are six states in which

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[1] *Introduction to Public Finance*, pp. 163–164.

it is not used to supply revenue for the state or central government. Without a single important exception, it is used in every city, in every town or its counterpart in local government, in every district, be it a road district, school district, drainage or irrigation district, or a district organized for some other purpose.

Although there is much criticism of the property tax, and although many other forms of taxation have been and are being proposed, the property tax is still the preëminent tax. Until, therefore, laws are enacted providing for another form of taxation, local school officials will have to look to the property tax for the major portion of the increases in school revenue. Two possibilities exist for securing additional funds from the property tax. In the first place, the tax duplicate of the school district may be increased. This increase may be procured by getting on the tax duplicate all property that should be on it and by getting it on at the value which the law prescribes. In the second place, the tax rate may be increased. The laws of most states make it possible for a school district to increase its tax rate either by action of the board of education, or of some other taxing board, or by a vote of the people.

In some communities both of the steps mentioned above may be feasibly taken. In practically all communities much can be accomplished in the way of getting all property on the tax duplicate at the value which the law requires. This should be done in justice to all taxpayers. It is manifestly unfair for one individual to pay taxes on only a portion of his property and for another individual to pay taxes on all his property. Facts abundantly show that much property is not listed on the tax duplicate and that much which is listed is not listed at the valuation which the laws prescribe; this is particularly true of personal property. It is common knowledge that most personal property escapes taxation.

If the tax rate has not reached the maximum established by law, it will, of course, be possible to increase it either by action of the board of education, or of some other tax-levying agency, or by a vote of the people. How high a tax rate a community can afford to pay is largely a matter of opinion. It would seem, however, that the tax rate in many communities has already reached a point beyond which further increases should not be considered; in many communities the rate is now so high that the taxes which must be paid amount to more than a fair income on the property. When such is true, governmental confiscation of property has set in and community bankruptcy is just around the corner. High taxes have hit the farming districts particularly hard during recent years. Innumerable farms during recent years have not produced enough to pay the taxes on them.

3. *Finding New Sources of Revenue*

When school officials have subjected the schools to critical scrutiny and have effected all economies possible and when they are assured that all sources of revenue to which the schools are entitled are coming into the school coffers, — when they have done these things and find that more money is needed, — they must find new sources of revenue. Moreover, they must convince the public that it has the ability to provide additional revenue. They must convince the public of its ability to finance education by informing it of its wealth and its income; moreover, they must prove again to the public the necessity of education in a democracy.

So far, when the needs of the schools have been brought to the attention of the people, the necessary funds for maintaining the schools have been procured. Whereas tax levies for roads, for municipal buildings and parks, and for other public functions have not always been voted by the people, the schools have generally been voted what they have requested. This evinces an abiding faith of the people in education.

A new taxation system. Most writers on public finance and taxation have dwelt upon the shortcomings of the property tax. They have generally agreed that theoretically and practically the property tax is a failure as a main source of public revenue. In the early days, when most wealth reposed in lands and buildings, the property tax was more equitable; it is not so suited, however, to the present industrial and commercial era. Much of the wealth of the nation today is of an intangible sort, and it is this intangible property that the property tax cannot reach. Real estate, therefore, must bear the brunt of the tax burden. E. R. A. Seligman, an eminent taxation expert, says that "the general property tax as actually administered today is beyond all peradventure the worst tax known in the civilized world." C. C. Plehn,[1] another authority, writes in the same vein; he says:

> Everywhere but in America it has been (*a*) divided into a number of subordinate property taxes, (*b*) allowed to become a subordinate member of another system, or (*c*) entirely abandoned. Sooner or later it will have to be abandoned in America.

Recently a committee appointed by the National Tax Association to prepare a plan for a model system for state and local taxation submitted its report. Since this committee was constituted of some of the foremost taxation authorities in the nation, the recommendations of the committee are worth serious consideration. The committee agreed on the following principles upon which they affirm that a uniform system of state and local taxation should be based:[1]

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[1] *Introduction to Public Finance*, p. 190.

> Any proposed system of state and local taxation must, at the very outset, recognize certain existing conditions and conform to certain practical requirements before it can be seriously considered as a basis for legislation. These conditions and requirements the committee has had constantly in mind. They may be stated briefly as follows:
>
> *A*. The proposed system must yield the large revenues which our state and local governments require at the present time.
>
> *B*. It must be practicable from an administrative standpoint; that is, it must be capable of being administered by such means and agencies as the states have at their command or can reasonably be expected to provide.
>
> *C*. It must be adapted to a country with a federal form of government, and to this end must reconcile the diverse claims of our several states, which now conflict at many points, thereby producing unjust multiplication and disregard of interstate comity.
>
> *D*. It must respect existing constitutional limitations, federal and state, or else point to practicable methods of constitutional amendment.
>
> *E*. It must represent as nearly as possible a general consensus of opinion, and to this end must give careful consideration to the most influential body of opinion developed and formulated by the National Tax Association.
>
> *F*. It must not propose measures wholly foreign to American experience and contrary to the ideas of the American people. . . .
>
> Study of the tax laws of the American states reveals the fact that there are three fundamental principles which have been more or less clearly recognized by our lawmakers. . . .
>
> The first is the principle that every person having taxable ability should pay some sort of a direct personal tax to the government under which he is domiciled, and from which he receives the personal benefits which that government confers. . . .

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[1] Preliminary Report of Committee to prepare a Plan of a Model System of State and Local Taxation.

> The second principle is that tangible property, by whomsoever owned, should be taxed in the jurisdiction in which it is located, because it there receives protection and other governmental benefits and services. . . .
>
> The third principle, somewhat less clearly and generally exemplified by our tax laws, but discernible none the less, is that business carried on for profit in any locality should be taxed for the benefit it receives.

Following the statement of these principles the committee outlines a model system of state and local taxation. In brief, the committee recommends a lesser use of the property tax and a greater use of other forms of taxation; the other forms of taxation particularly recommended to take the place of the property tax are the personal-income tax and the business tax. Herewith is given a summary of their recommendations for a model system:[1]

> 1. *Personal-income tax.* The first decision reached by the committee was that . . . there should be a personal tax levied with the exclusive view of carrying out the principle that every person having taxable ability should pay a direct tax to the government under which he is domiciled. . . . The committee . . . is of the opinion that a personal-income tax is the best method of enforcing the personal obligation of the citizen. . . . It is contrary to the theory of this tax that it should apply to the income from any business as such, or apply to the income of any property as such. The tax should be levied upon persons in respect to their entire net income, and should be collected only from persons and at places where they reside. . . . The committee believes that the amount of the income exempted from the personal-income tax should not exceed $600 for a single person and $1200 for a husband and wife, with a further exemption of $200 for each dependent up to a number not to exceed three. . . . The lowest rate should be not less than 1 per cent, and under present conditions we regard it as inexpedient to impose a rate higher than 6 per cent. . . .
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> 2. *Property tax.* The second part of the tax system proposed by

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[1] Ibid.

the committee is a tax upon tangible property, levied exclusively at the place where the property is located. . . . We recommend that it be confined to tangible property, and that intangible property of all descriptions be exempt from taxation as property. . . . We believe that the personal-income tax which we have already recommended will reach income from intangible property fully and fairly at the only place where it can be taxed without running the risk of unjust double taxation.

The primary work of assessment will, of course, continue to be done by local authorities; but it is essential that such work should be supervised, and where necessary controlled, by a competent state tax commission or tax commissioner.

3. *Business tax.* A properly constituted business tax . . . which should, except in certain cases, be levied on the net income derived from business carried on within the state levying the tax. The rate of the business tax should be proportional and not progressive. . . . We believe that, in general, a tax of 2 per cent of such income would be adequate. . . . The rate in no case should exceed 5 per cent. The administration of a business tax must be placed in the hands of the state tax commission or tax commissioner. The business tax we recommend is proposed as a substitute for all existing business taxes.

4. *Inheritance tax.* The committee strongly favors the use of the inheritance tax by the American states; . . . none of our recommendations, if carried out, will interfere in any way with the levy of inheritance taxes by the states. . . .

5. *Taxes on consumption.* The National Tax Association will do well to appoint a committee to canvass carefully the possibility of supplementing existing sources of state and local revenue by taxes levied upon what may fairly be classified as luxurious consumption.

6. *Tax administration.* Assessment districts should be large enough to justify the employment of at least one permanent official in each district, who should receive a salary sufficient to make it possible for him to give all his time to his work. Such permanent assessors should be provided with well-equipped offices, a suitable number of permanent clerks, and such part-time assistants as may be needed for a short period each year. . . . The committee favors the method of appointment, since it does not believe that, other

things being equal, elective officials can or will perform their work as efficiently as appointive. . . . These officials should serve for a term of at least four years. . . . All assessors, whether elected or appointed, should be subject to removal for willful negligence or malfeasance while in office. A permanent tax commission, or tax commissioner, should be established in every state. . . . The proposed personal income and business taxes should be administered by state rather than by local authorities.

7. *Separation of sources of state and local revenue.* The plan we propose does not require any separation whatever of the sources of state and local revenue, but . . . it is not inconsistent with the adoption of a thorough-going scheme of separation. . . . The committee is of the opinion that a partial separation of the sources of state and local revenue is desirable, but that complete separation, by cutting the connecting cord between state and local governments, tends to destroy the state's sense of responsibility in the matter of local taxation.

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CHAPTER VI

SCHOOL FINANCIAL ACCOUNTING

Deficiencies in School Financial Accounting Today

One of the most urgent needs in the business administration of the schools today is an efficient accounting procedure. Although much progress has been made during recent years toward securing a desirable procedure, conditions are far from being satisfactory. The schools, and all governmental endeavors for that matter, have far to go before their financial accounting procedures approximate in efficiency those of industrial concerns. Here, as well as in many other phases of their administration, the schools would do well to take some lessons from industrial management. Necessity, that mother of invention, has compelled industrial concerns to install efficient accounting procedures; competition has been the spur to industries in this forward step. In foreign countries, where industrial competition has been keen for many decades, financial accounting has made its greatest strides. In this country the science of accounts is a much more recent development.

In this matter the schools have not been under the same urge as have industrial concerns. The schools are not organized for profits, nor have they been required by the public to show the cost of providing this service and that. In the absence of such requirement upon the part of the public, school officials have not always seen the importance of a good accounting procedure. Even the successful business man on the board of education will often tolerate in his school system a financial-accounting procedure which he would consider archaic if used in his private business.

We venture the prophecy that the public will soon demand a more strict accounting of the schools with respect to their cost and output; indeed, the incidence of that demand is already here. The financial well of the public is not inexhaustible, and as expenditures increase, and the financial well becomes more depleted, a hue and cry will come from the public over present accounting practices; better financial-accounting practices will then come into vogue and eventually will become ubiquitous. A. J. Peel[1] says:

> In the world of commerce and trade, when the cost to the consumer has reached its limit, and additional cost means reduced sales, the manufacturer knows that the time has arrived to do one of two things — either take less profit, or reduce the cost of production. We have a parallel condition in the cost of education in this country. The cost to the taxpayer has almost, if not quite, reached the limit. The profit in school work is measured in terms of the *number* of children educated, and the *quality* of that education: Can we take less profit? Then, what is the alternative? We must reduce our operating costs — we must cut down the cost. But before we can do this we must *know* what our present costs are, and we must know these very minutely. When we *know* our costs, we can begin to *beat* them, not before. This has been completely demonstrated in the business world, over and over again; it has been demonstrated in a few school districts, but the need for its application to a much greater number is imperative.

The deficiencies in school financial accounting are immediately brought to light when one undertakes to secure information on the cost of providing a given material or service in certain comparable communities. Criticism of accounting procedures has come from all persons who have attempted to secure such data. In fact, obsolete accounting systems have made it nigh impossible to secure accurate financial data except those which show total expenditures; even data showing total expenditures must often be accepted with some misgivings as to their accuracy. What a school system spends for plant operation, plant maintenance, general control, and other functions is almost impossible to secure from the records of the typical clerk. Wise people have learned to accept school-finance data with a grain of salt; prudent readers of such data have learned to read carefully between the lines; they know that not to be wary in these matters is to be gullible.

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[1] *Simplified School Accounting*, pp. 5–6.

In his classic study of school costs and school accounting J. H. Hutchinson[1] attempted to secure unit-cost data for various items from twenty large cities in the eastern section of the United States, the section which has probably developed its school financial accounting procedure to a higher degree of efficiency than any other section. He found that his desire to secure such data could not be fulfilled because of the inefficient systems of bookkeeping in use. He summarizes in the following words the defects of the accounting procedure of the school systems of those twenty large cities:

> No attempt is made to account for revenue accruing and expense incurred for education during any given period, accounts being kept so as to show only receipts and expenditures. . . .
>
> There is no attempt to distinguish expenditures made to enable education to be carried on with present facilities, from expenditures made to increase facilities for education, i.e., there is no attempt to distinguish expenditures for maintenance from expenditures for capital outlay. . . .
>
> No city obtains the total expenditures for each kind of school, so that it is impossible to learn the total expended for high schools, for elementary schools, for vocational schools, and for evening schools. . . .
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> No city obtains the total expended for each character of expendi-

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[1] *School Costs and School Accounting*, pp. 34, 36, 46, 52, 55.

> ture, so that it is impossible to learn the totals spent for administration, supervision, instruction, operation, maintenance, and capital outlay. . . .
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> There is no common classification of objects of expenditure, by which may be described the expenditures for all schools, for each kind of school, and for character of expenditure.

Within recent years much progress has been made toward correcting the unsatisfactory conditions which Hutchinson points out; practice, however, still lags far behind the best theory. Although they are unsatisfactory, the conditions which have been found in the large cities sink into insignificance when compared with those existing in the small cities, villages, and rural districts. To say that financial accounting in the latter districts is in a chaotic condition is to state the situation mildly. The accounting records of the small systems are not nearly so adequate as those of the large systems, nor are the clerks who keep the records so well qualified for such work. By far the majority of the clerks of the small districts have had no training in bookkeeping, many lack general education, and it is the exceptional one who has a concept of the purposes of financial accounting and a knowledge of the ways and means of attaining those purposes. In most states the crying needs in school financial accounting are, first, a modern system of records and, second, better qualified clerks to keep the records.

Whether in industry or in public affairs, accurate and significant statistics make or unmake an administration. Opinions and vague estimates carry little weight in arguments with clear-thinking individuals. The most serviceable implements and weapons of the modern school-administrator in the hurly-burly of his work are accurate and significant statistics. Proper statistics are the foundation and the framework for an efficient administration of a school system; without such the superstructure of the system is not well buttressed. In the business administration of a school system the necessary statistics cannot be procured unless there is an efficient accounting procedure in use.

Purposes of School Financial Accounting

School financial accounting serves three purposes: it assists in formulating policies for the whole organization or for any part or parts of the organization; it helps in ascertaining the efficiency of personnel, methods, materials, and equipment; it guarantees the fidelity of individuals who have the custody of public funds.

Only the third purpose has been realized in the practices of most school systems. Unfortunately that purpose is the only one to which more than passing attention has been given by school officials and the public. In most school systems, if there are sufficient records to prove fidelity of public officials to their trust, — to ascertain honesty or dishonesty on the part of such officials, — such records are deemed sufficient. Although any desire to minimize the advisability of having a careful and periodical audit of the accounts of all public officials is disclaimed, — the necessity for such audit is admitted, — it is affirmed that the first two purposes are much more important. It is in realizing those purposes that most school systems have been negligent.

Accounting which assists in realizing the first two purposes is called *cost accounting*. Cost accounting simply states expenditures in "terms of output, of work done, of services rendered." J. H. Hutchinson[1] states the function and the scope of cost accounting in the following words:

> This phase of accounting is more recent than the former. It is found chiefly in private concerns, having made little headway in municipal accounting. It came as the result of keen competition in

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[1] *School Costs and School Accounting*, pp. 8–9.

the industrial world. The manufacturer was obliged to make a certain profit. To do this he had to sell at a price not above that of his competitors. So to be certain of covering all the expense of manufacture and to insure the profit derived he had to know accurately the costs of production. Again, by accounting for such process in the manufacture of an article, the manufacturer can continually cheapen production by trying new methods of performing certain operations and comparing the costs of these with the methods previously used. But probably the most important use of cost accounting is to measure efficiency. By learning the cost per unit for performing the various steps in the production of an article, by comparing it with previous costs and usual costs, it can be known at once when any changes have taken place in the performance of the work and from that the causes of such changes. When one department or one man is turning out more work, the matter becomes known and can be investigated and perhaps the new method can be used in other departments and by other men to increase their efficiency. . . .

From the above can be inferred the importance of determining standard costs of education. What a lawn mower, a stationary engine, or a locomotive should cost is known. It is known what one should spend to construct a house of a certain kind, to keep a hen for a certain period, to raise a spring lamb; but no one knows how much should be spent to educate a child; it is not even known how much should be spent to give a child one year's schooling.

A study of sufficient cities should enable one to determine what ought to be the cost of instructing a child in each kind of school. Such standards would enable cities to determine whether they are doing right by their youth; they would serve as a guide to them. Such standards would enable those interested in education to test the efficiency of the educational performance of any city. That is, standard unit costs for education would serve as tests which, together with other tests, could be used by those within and by those without a school system to determine the efficiency of educational production.

Another way in which a proper accounting procedure aids in formulating and executing school policies is in preparing and administering the budget. A budget estimate for the ensuing year must be based largely on the experience of previous years; that is, on the amount of revenue from each of the several sources and the expenditure for each of the several functions. An efficient accounting system will make information on such previous revenues and expenditures readily available. Moreover, by showing the balance of funds on hand and the liabilities incurred as well as the disbursements already made, it aids in revising and administering the budget.

Desirable Characteristics of a School Financial-Accounting System

The prime test of an efficient financial-accounting system is whether it combines *simplicity* with *adequacy*.

Simplicity is necessary in view of the fact that a large percentage of the school clerks are untrained in financial-accounting procedure. In thousands of school districts, particularly the rural districts, it is difficult to procure a clerk who has the qualifications requisite for keeping financial records. In many rural districts persons so qualified do not exist; if they do exist and are invited to accept the clerkship, they often refuse the office because the salary is only fifty, one hundred, or two hundred dollars annually. We repeat that a crying need in school financial accounting today is better-qualified clerks; nowhere is this need so urgent as in the rural districts. For the rural school districts of a county there would be advantages from the standpoints of financial economy and efficiency in providing a county clerk to take the place of the local clerks.

An adequate accounting system is one which assists in realizing the purposes of financial accounting; these purposes were mentioned in this chapter under the caption

"Purposes of School Financial Accounting." In his study of school financial accounting Hutchinson says that in order that an accounting system may be used to accomplish the purposes for which it exists, it must make available three types of information:[1]

> Data describing transactions with outsiders to which the organization is a party; data describing transactions between various divisions within the organization; and data summarizing and relating these transactions. That is, in its simplest form, accounting requires records of orders, receipts, and payments of services and things supplied to the organization and by the organization; records of orders and receipts of services and things made by one division of the organization upon other divisions of the same organization; and records, or better, accounts showing the condition of the organization with respect to funds appropriated to purchase services and things received and supplied, and amounts paid and due. Accounting also makes provision for giving summarized information periodically concerning the above data.

In addition to meeting the foregoing criteria an adequate accounting system will be standardized; that is, it will follow the best practice in its classifications, nomenclature, and definitions. Most of the criticism of the accounting systems in use today has been and is directed at this lack of standardization. Greater uniformity in classifications, definitions, and nomenclature is a desideratum.

When one undertakes to secure comparable data on the costs of various items among different communities, the lack of standardization, of uniformity, becomes an immediate handicap to the securing of accurate data. If one desires to know, for example, the amount of money or the percentage of the total expenditures which goes for school-plant maintenance, he finds that what one school system classifies as a maintenance charge another lists as an operation expense and still another calls capital outlay. The failure to employ a uniform nomenclature and classification has rendered most studies of unit costs almost worthless. Our financial accounting systems should speak the same language, whereas they speak different languages.

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[1] *School Costs and School Accounting*, p. 57.

In spite of the late start which was made, much headway has been gained by a few states toward securing uniformity in their accounting procedures. Organized efforts toward securing such began in 1912, when a committee constituted of representatives of the United States Bureau of Education, the United States Bureau of the Census, the National Education Association, and the National Association of Public School Business Officials met to draft a set of standard accounting forms and to adopt a uniform nomenclature. The report of this committee was published under the title of "Uniform Records and Reports,"[1] and is well worth the perusal of the student of this subject. In his letter of transmittal for the publication of the report, P. P. Claxton, then the United States Commissioner of Education, said in argument for uniform methods in financial accounting:

> The best interests of education demand that there should be adequate and uniform methods and forms for collecting and recording statistics of schools of all kinds in all the states, cities, and rural districts of the Union. The work of collecting, compiling, and interpreting statistics in the Bureau of Education would be greatly helped by this.

The good leaven of the work of this committee spread rapidly, and in 1916 the New York State Department of Education introduced the first uniform accounting system into the schools of that state; the system was based upon the report of the national committee. The presence of such a system in New York has undoubtedly been a cogent reason for the many excellent studies of school finance which have been recently made in that state. School-finance data of New York may be used with more than ordinary confidence in their accuracy.

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[1] *United States Bureau of Education Bulletin No. 3,* 1912.

Following the example of New York, although somewhat tardily, uniform procedures were adopted by Idaho, Indiana, Iowa, Michigan, New Jersey, and Pennsylvania. The procedures of all these states are based upon the system recommended by the national committee which made its report in 1912. In addition to the states named above, the "national system," so called, is used in hundreds of school systems in other states, which do not prescribe uniformity. In the next section of the chapter the reader will be given a closer acquaintance with this system, which has gained so wide a vogue. Most states which have adopted a uniform system have rightly deemed it advisable to publish a handbook of accounting instructions, this handbook to be placed in the hands of clerks who have the responsibility of keeping the accounts.

In summary, the advantages which uniformity in school accounting would beget are, first, it would make it possible to compare financial practices in one community with similar practices in other communities; second, it would make the task of auditing the accounts much easier; third, it would make it easier for school officials to make their reports to the chief state school official, the United States Commissioner of Education, or other agencies; and, fourth, it would make it easier to train school clerks and other school officials in financial accounting.

Needed Records

In the next succeeding pages attempt will be made to suggest the basic records needed for an efficient system of school financial accounting. In such attempt the reader will readily see that it is difficult to suggest one set of records which will be adequate for the large system yet simple enough for the small system.[1] We shall have to be content with giving the reader an acquaintance with the national system. It will be impossible within the limits of this book to show samples of the minor and subsidiary forms.

A. J. Peel,[2] an authority on financial accounting, has developed a system of records which provides for five ledger accounts. These are (1) balance-sheet accounts; (2) appropriation accounts; (3) revenue accounts; (4) operating accounts; and (5) fixed charges. A graphic representation of Peel's system is shown in Fig. 10.

It will be observed from the foregoing outline of Peel's system that it makes provision for two types of necessary facts, — those pertaining to assets and liabilities, and those pertaining to income and expenditures. A system which does not make provision for furnishing all these facts is inadequate; it has sacrificed a basic principle for simplicity. It will be argued by some that Peel's system is too complex for the typical clerk of today to manipulate. We would say in answer to such argument that if the present clerks are not competent to operate such a system, either they should be given the necessary instructions to make them competent or their services should be dispensed with and competent clerks employed.

Stated more specifically, Peel's system provides for furnishing facts on the following subjects: (1) assets in the way of land, buildings, equipment, supplies, and cash, and liabilities in the way of accounts payable and bonded indebtedness; (2) appropriations for specific functions, the expenditure against each appropriation, and the available balance in each appropriation item; (3) revenue received and expected from each source; (4) expenditures for the several school functions, these being segregated in such a way that studies of unit costs and comparisons may be readily made; and (5) fixed charges such as insurance, interest on bonds, pensions, and rent.

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[1] For an excellent set of financial-accounting forms, the reader is referred to the book by Engelhardt and Von Borgersrode which is listed in the Selected References at the close of this chapter.

[2] *Simplified School Accounting*, p. 22.

It will be noted that Peel's chart of accounts depicts only the ledger part of the accounting system. It should be stated that his complete system properly provides for much more information than his chart indicates. For example, it makes provision for the keeping of all original records involving financial transactions; among these original-transaction records are supplies requisitions, work requisitions, purchase orders, pay rolls, time sheets, invoices, and canceled warrants.

Closely allied with the work of keeping such original records is that of keeping the voucher register. That such a register be kept is recommended by all competent accountants. In Fig. 11 is shown a voucher-register form.[1] A voucher may be defined as any form of invoice, bill, or pay roll which has been checked and certified as a legitimate charge against the school system. Peel recommends that the original document — that is, the invoice, bill, or pay roll — be attached to a voucher form on which is shown the amount to be charged, the name of the payee, the amount of the account, and various other items which may be required for properly recording the transaction.[2] In order that entries may be reduced to a minimum, several invoices received from the same vendor during the same month may be cared for by one voucher; likewise, the monthly or semi-

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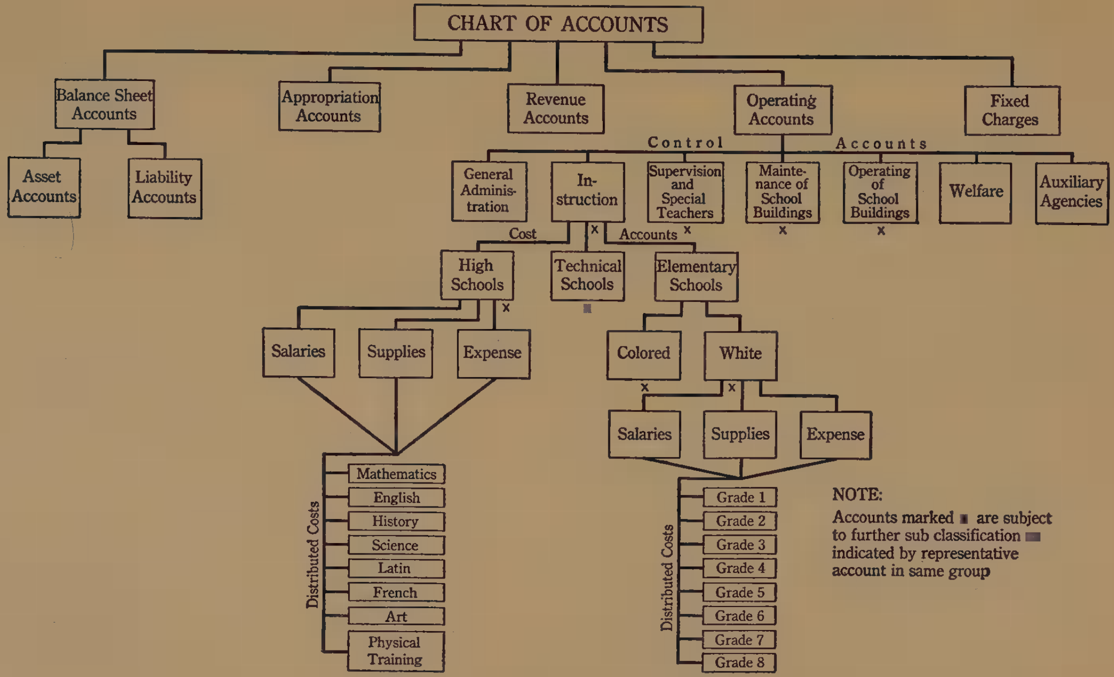
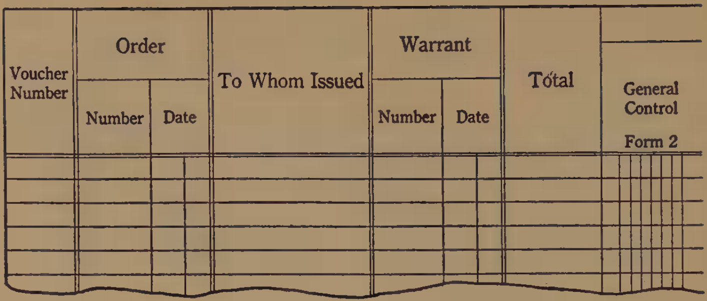
[1] This particular form is published by C. F. Williams and Son, Albany, New York.

[2] Ibid. p. 37.



NOTE:
Accounts marked ■ are subject to further sub classification ■ indicated by representative account in same group

FIG. 10. Peel's chart of accounts for a school system



Voucher Number	Order		To Whom Issued	Warrant		Total	General Control Form 2
	Number	Date		Number	Date		

FIG. 11. A suggestive form

monthly pay roll may be provided for by one voucher. Many school accountants deem it an excellent plan to file in a separate voucher envelope or jacket all records relating to a transaction. All vouchers should be filed numerically and kept for auditing purposes and for future reference.

From time to time — preferably not less than once a month — the unregistered vouchers should be recorded in the voucher register. A voucher register is simply a summary statement of expenditures by functions. Its main purpose is to give the bookkeeper information relative to any expenditure which will enable him to post the ledger accounts at least monthly. Frequent posting is recommended.

The heart of an accounting system, however, is the ledger portion of it, which gives a record of all expenditures classified by function. It is this part of the system which is referred to in the discussions of the necessity for uniformity. The national committee on the standardization of accounting procedure, to whose work a reference was made in a preceding part of the chapter, suggested a schedule for the classification of accounts, which has been widely adopted. As stated earlier, this schedule has become the basis for most of the uniform state systems today. We are reproduc-

DISTRIBUTION						
	Proprietary Service					
Instructional Service	Operation of Plant	Maintenance of Plant	Fixed Charges	Debt Service	Capital Outlay	Auxiliary and Sundry Activities
Form 3	Form 4	Form 5	Form [illegible]	Form 7	Form [illegible]	Form [illegible]

for a voucher register

ing herewith in toto the "Standard City Schedule." The committee also recommended an "Abridged City Schedule" for use in smaller school systems.[1]

STANDARD CITY SCHEDULE FOR FINANCIAL ACCOUNTING

A. PAYMENTS

I. EXPENSES (COST OF CONDUCTING SCHOOL SYSTEM)

Expenses of general control (overhead charges)

1. Board of education and secretary's office.
2. School elections and school census.
3. Finance offices and accounts.
4. Legal services.
5. Operation and maintenance of office building.
6. Officers in charge of buildings and supplies.
7. Office of superintendent of schools.
8. Enforcement of compulsory-education and truancy laws.
9. Other expenses of general control.
10. Total for general control.

Expenses of instruction

11. Salaries of supervisors of grades and subjects.
12. Other expenses of supervisors.

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[1] *Bulletin No. 3,* 1912, of the United States Bureau of Education gives both schedules.

13. Salaries of principals and their clerks.
14. Other expenses of principals.
15. Salaries of teachers.
16. Textbooks.
17. Stationery and supplies used in instruction.
18. Other expenses of instruction.
19. Total for instruction.

Expenses of operation of school plant

20. Wages of janitors and other employees.
21. Fuel.
22. Water.
23. Light and power.
24. Janitor's supplies.
25. Other expenses of operation of school plant.
26. Total for operation of school plant.

Expenses of maintenance of school plant

27. Repair of buildings and upkeep of grounds.
28. Repair and replacement of equipment.
29. Insurance.
30. Other expenses of maintenance of school plant.
31. Total for maintenance of school plant.

Expenses of auxiliary agencies: Libraries

32. Salaries.
33. Books.
34. Other expenses.

Expenses of auxiliary agencies: Promotion of health

35. Salaries.
36. Other expenses.

Expenses of auxiliary agencies: Transportation of pupils

37. Salaries.
38. Other expenses.
39. Total for auxiliary agencies.

Miscellaneous expenses

40. Payments to private schools.

41. Payments to schools of other civil divisions.
42. Care of children in institutions.
43. Pensions.
44. Rent.
45. Other miscellaneous expenses.
46. Total for miscellaneous expenses.

II. OUTLAYS (CAPITAL ACQUISITION AND CONSTRUCTION)

47. Land.
48. New buildings.
49. Alteration of old buildings.
50. Equipment of new buildings and grounds.
51. Equipment of old buildings, exclusive of replacements.
52. Total for acquisition and construction.

III. OTHER PAYMENTS

53. Redemption of bonds.
54. Redemption of short-term loans.
55. Payment of warrants and orders of preceding years.
56. Payments of sinking funds.
57. Payments of interest.
58. Miscellaneous payments, including payments to trust funds, textbooks to be sold to pupils, etc.
59. Total for other payments.
60. Balances at close of year.
61. Total payments and balances.

B. RECEIPTS

I. REVENUE RECEIPTS

62. Subventions and grants from state.
63. Subventions and grants from county.
64. Subventions and grants from other civil divisions.
65. Appropriations from city treasury.
66. General property taxes.
67. Business taxes (licenses, excise taxes, taxes on corporations, taxes on occupations, etc.).

Date		Voucher Number	Code	SUPERVISION				
				Supervisors of Grades and Subjects		Principal's Office		
				Salaries 1	Other Expense 2	Salary of Principal 3	Salary of Clerk 4	Supplies 5
	No. of Item as in the Report of the U. S. Commissioner of Education			11-20	12-21	13-22	14-23	14-23
	Appropriation							

FIG. 12. Sample ledger form for recording

Date		Voucher Number	Code	BUILD-			
				Wages of Janitor and Other Employees 1	Fuel 2	Water 3	Light and Power 4
	No. of Item as in the Report of the U. S. Commissioner of Education			31	32	33	34
	Appropriation						

FIG. 13. Sample ledger form for recording

68. Poll taxes.
69. Fines and penalties.
70. Rents and interest.
71. Tuition and other fees from patrons.
72. Transfers from other districts in payment of tuition.
73. All other revenue.
74. Total revenue receipts.

II. NONREVENUE RECEIPTS

75. Loans and bond sales.
76. Warrants issued and unpaid.
77. Sales of real property and proceeds of insurance adjustments.
78. Sales of equipment and supplies.
79. Refund of payments.

			TEACHING						
Other Expense 6	7	Other Expense of Supervision 8	Salary of Teachers 9	Text Books 10	Other Supplies used in Instruction 11	12	Commencement Exercises and Exhibits 13	Other Expense of Instruction 14	Total Expense of Instructional Service 15
14-23		15-24	16-25	17-26	17-26				

expenditures for instructional service

INGS, OFFICES AND GROUNDS							
Janitor's Supplies 5	General Care of Grounds 6	Services other than Personal 7	8	9	10	Other Expense of Operation 11	Total Expense of Operation of Plant 12
35	36	36				36	

expenditures for operation of the school plant

80. Other nonrevenue receipts.
81. Total nonrevenue receipts.
82. Total receipts.
83. Balances at beginning of year.
84. Total receipts and balances.

In Figs. 12 and 13 are exhibited sample ledger forms for the recording of expenditures for instructional service and operation of the school plant respectively. We regret that the limits of this chapter do not permit the display of sample ledger forms for the recording of expenditures for the other major classifications, namely, general control, maintenance of the school plant, fixed charges, debt service, capital outlay, and auxiliary agencies and miscellaneous items. By the use of a code number or letter for the expenditures for different types of schools and services, such a distribution as is illustrated in Figs. 12 and 13 will permit the study of unit costs of almost every item.[1] In recording expenditures elementary schools may be given the code letter *E*, and high schools may be given the code letter *H*; similarly, a different code letter or number may be assigned to each building, department, or service. The advantage of using a code-number or code-letter system is that it obviates the necessity for a large and unwieldy ledger. Accountants who use such a system are unanimous in praising it.

Date		Source of Revenue	Purpose	Amount			

FIG. 14. Sample page from the cash-receipts book

Another necessary record in a school financial-accounting system is a cash-receipts book, in which are listed all revenues as they come to hand. In Fig. 14 is shown a simple form which may be used in recording cash receipts. At the close of each month the cash-receipts book should be ruled below the last entry for the month, the entries totaled, and the footings posted to the general-ledger account. The monthly financial statements (see Fig. 15), which are discussed under the next caption of this chapter, are made partly on the basis of the data afforded by the cash-receipts book.

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[1] With acknowledgments to C. F. Williams and Son, Albany, New York.

Financial Statements

It is well for school officials to investigate regularly the status of the accounts of the school system. Such a periodic appraisal is considered so necessary that most states require boards of education to publish at the close of each fiscal year a statement of the income and expenditures during that fiscal year. Several states deem such statement to be so important that they require that it be minutely itemized and that it be published in a local newspaper; other states, particularly the New England States, prescribe that such annual statement be published in pamphlet or bulletin form.

Whatever opinion the members of the board of education, the teachers, and the general public have of the finances of the school system must be secured largely from such statements. It therefore behooves the financial officer to present such statements in the most intelligible manner possible. Diagrams, charts, and comparisons may be advantageously used in presenting clearly such data. Newspapers are the best publicity medium, and they are usually glad to publish such data without charge, if the data can be presented in such a way as to be of general interest.

Monthly statement of income and expenditure. The purpose of this statement is to show the status of the funds appropriated for school purposes. In order that the members of the board of education as well as he himself may be properly informed, the superintendent of schools will find it a good policy to present regularly such a statement to his board of education. A suggestive form for such a statement is shown in Fig. 15.

It will be noted that the form suggested provides for showing the sources of income by month and to date, the amount of the budget, and the balance available. In the columns captioned "Expenditure" should be listed *contractual liabilities*, not disbursements. Likewise the "Balance Available" should be secured by subtracting contractual liabilities from the amount of the budget. Contractual liabilities should be considered in such statements rather than payments. Such a statement serves as a budget guide and control, keeps school officials regularly informed of the status of the school funds, and enables the making of comparisons with the previous year and with different months of the same year.

MONTH	INCOME								EXPENDITURE							BUDGET		
	Taxes	State Aid	Rentals	Sale of Property	Foreign Tuition	Depository Interest	Other Sources	Total	General Control	Instruction	Operation of Plant	Maintenance of Plant	Fixed Charges	Debt Service	Auxiliary Agencies	Total Expenditure	Amount of Budget	Balance Available
January																		
To Date																		
February																		
To Date																		
March																		
To Date																		
April																		
To Date																		
May																		
To Date																		
December																		
To Date																		

FIG. 15. Monthly income-and-expenditure statement

Annual balance statement. The annual balance statement, or balance sheet, is simply a statement of assets and liabilities. Such statements are always made by well-managed private businesses, but are infrequently made by the schools. A. J. Peel[1] writes as follows regarding the nature and the function of the balance statement for a school system:

> The limitations of county, city, and school board accounting systems have long prevented the proper preparation of a statement

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[1] *Simplified School Accounting*, pp. 110–111.

of assets and liabilities, and instead the long-suffering taxpayer has been befuddled with a mass of figures and strange combinations in which operating expenses have been persistently confused with capital expenditures.

The reader will recall that under the system which has been outlined [for Peel's system see *Simplified School Accounting*, pp. 50–99] the ledger accounts are so arranged that all the asset and liability accounts are classified together and follow each other in true sequence. If we take the balances in these accounts after all postings have been made from the voucher register and journal, we shall discover that the assets are in balance with the liabilities and the surplus; or that the liabilities are in balance with the assets and the deficit, provided the postings and entries are correct. If we transfer the accounts and balances from the ledger, and arrange them in the form of a balance sheet, this is how they will appear:

BALANCE SHEET

Assets

School sites and buildings	$------
Permanent equipment	------
Taxes receivable	------
Appropriations receivable	------
Accounts receivable	------
Cash (various funds)	------
Securities	------
Sinking funds	------
Total	$------

Liabilities

Accounts payable	$------
Bonded indebtedness	------
Short-term loans	------
Interest payable	------
Reserves — Depreciation	------
Reserves — Uncollectable taxes	------
Reserves — Sinking fund	------
Surplus	------
Total	$------

Types of Unit-Cost Studies

In the first part of this chapter it was remarked that one of the chief functions of school financial accounting is to provide data which will permit an expeditious making of accurate studies of unit costs. Examples of questions that should be asked in studying unit costs are: How does the cost of providing a given material or service compare with that in other school systems? How do costs in a given building compare with those for the same materials and services in other buildings in the same system? How may costs be decreased without lowering the quality of product or decreasing efficiency of service? Before such questions can be answered by school officials they must know what their costs are.

In one of the earliest, yet most scholarly, studies of unit costs, J. F. Bobbitt[1] gives the following reasons for making unit-cost studies. Although the data of his study are taken from secondary education, his conclusions apply with equal cogency to elementary and higher education.

> Accurate cost-accounting lies at the foundation of all successful business management. In railroad administration, for example, it is known that under usual normal conditions locomotive-repair costs should average about six cents per mile run; lubricating oils should cost about eighteen cents per hundred miles for passenger locomotives and about twenty-five cents for freight locomotives; and so on for each item involved in the entire management. With these cost standards at hand, derived from wide general practice, if a railroad manager finds at the end of a year that locomotive repairs average fifteen cents per mile run, then it is quite evident upon the surface that something is wrong somewhere. The railroad is paying too much wages to labor; it is getting too little labor for the amount expended; its labor force is working under adverse conditions;

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[1] "High School Costs," *School Review* (October, 1915), Vol. XXIII, pp. 505–506.

there is graft in the repair department; or the entire outfit of locomotives is in a sad state of depreciation. When the cost runs so high above standard, something needs to be investigated, and either shown to be the result of unusual conditions or corrected. If, on the other hand, the repair cost is running at three cents per mile on the average, and if unusual conditions do not exist, then it appears probable that the locomotives are being left to depreciate too rapidly. Cost accounting is thus seen to be one method of diagnosing the situation, and locating irregularities in management.

In operating a high school, expenditures need to be made for many things — general administration, supervision, instruction, fuel, janitors, light, power, library, etc. For each of these, standard unit costs are needed for judging the efficiency of the management. If it is known, for example, that satisfactory instruction in high-school English can be had for fifty dollars per one thousand student-hours, and that this price represents the norm of practice, then those responsible for high-school management have a standard of judgment that can be used for measuring the efficiency of their practices. If the instruction in this subject is costing them seventy-five dollars per thousand student-hours, and they are aiming at results of only the usual sort, it is evident that they are wasting money, and that administrative adjustments need to be made. If they are getting the commodity for thirty dollars per thousand student-hours, then it is probable that they are practicing so great an economy as seriously to injure the quality of the work.

There are, of course, hundreds of types of unit-cost studies which might be made. Thus, there are dozens of items of supplies and materials in use, and studies might be made of the cost of furnishing any particular supply or material on a per pupil or other basis. Likewise dozens of different services are provided and the per pupil cost of furnishing each of these services might be computed.

In making a unit-cost study, particularly a comparative study of unit costs, two problems are immediately encountered. The first is that of making sure that our data are accurate. Thus, if we were comparing instructional costs among several communities, we should know whether the term "instructional cost" is interpreted the same in the accounting systems of the various communities. In previous paragraphs it was recommended that school financial-accounting procedures be standardized on a uniform basis in order that comparable data might be more readily secured. A second problem is that of selecting the best cost unit for computing the cost upon which information is desired. It is apparent that the same cost unit cannot be used with all items. For example, the average-daily-attendance unit might be the best to use in certain instances, and another unit might be the best in other instances. We are listing herewith some items on which unit-cost studies may be advantageously made and the cost unit which may feasibly be employed.

Item	Cost Unit
Erecting a school building	Cubic feet of space
Expense of general control	Per pupil in A. D. A.[1]
Expense of instructional service	Per pupil in A. D. A.
Expense of operation of plant	Per pupil in A. D. A.
Expense of maintenance of plant	Per pupil in A. D. A.
Expense of fixed charges	Per pupil in A. D. A.
Expense of debt service	Per pupil in A. D. A.
Expense of auxiliary agencies	Per pupil in A. D. A.
Expense of supplies (janitor)	Square feet of floor space
Expense of fuel	Per pupil in A. D. A. and cubic feet of space
Expense of supplies (educational)	Per pupil in A. D. A.
Expense of janitor service	Square feet of floor area and per pupil in A. D. A.
Grade cost	Per pupil in A. D. A.
Subject cost	1000 student-hours of instruction
Total educational cost	Per pupil in A.D.A. and per $1000 of wealth

The expenditure statements and unit-cost studies of most school systems have taken cognizance only of expenditures for current expenses. Very few of such statements and studies have included the expenditures for capital outlays. For example, the writer has before him the annual financial report of a certain board of education, which states that the per pupil cost of education in the city in question is $104.50. In arriving at this figure only current expenditures have been included by the board. No account has been taken of the expenditure for new buildings and sites, — an expenditure which amounted approximately to 10 per cent of all expenditures, — nor was any charge made for interest and depreciation on capital outlay.

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[1] A. D. A. stands for average daily attendance.

The reports of the United States Commissioner of Education show that during the last few years almost one fifth of the school funds has been expended for capital outlays. A cost statement for a school system, or for any part of the work of the system, which does not take into consideration such expenditure is not a true statement. It neglects the second largest item of cost, for, next to instruction, capital outlays require the largest percentage of the school funds. Only when a charge has been made for interest on capital investments and for depreciation, as well as a charge for current expenses, have all items of expense been included. There is need for unit-cost studies in education which take into consideration all items of expense.[1]

Internal Accounting

During recent years extra-classroom activities have secured an important place in school programs everywhere. Most of these activities are revenue-producing and revenue-spending. In fact, in the large cities they frequently require the expenditure of large sums of money, often running into thousands of dollars annually. The schools of Detroit, Michigan, a city noted for the extent and splendid organization of its extra-classroom activities, spend at the present writing approximately one million dollars annually for such activities. In the typical school system the major types of extra-classroom activities which collect and expend money are athletics, class organizations, literary societies and clubs, school publications, and lunch rooms; there are, of course, dozens of other types, but these are of a more or less minor nature.

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[1] For suggestions on an excellent technique for taking account of expenses for capital outlays in unit-cost studies, see the book by Stevens and Elliott which is listed in the Selected References at the close of this chapter.

In spite of the fact that practically all such activities are financed by student fees and contributions and not by public funds, school officials should assume the responsibility of supervising their accounts. In order that the accounts may be properly controlled a definite accounting procedure should be established. Without definite accounting a legitimate expenditure of the funds cannot be assured, the reputations of individuals who handle the funds are apt to be besmirched, and policies for the administration of the various activities cannot be properly made and executed.

Every board of education should adopt rules and regulations governing the accounts of all extra-classroom activities. So far as we have been able to ascertain, Detroit, Michigan, has developed the most detailed set of such rules and regulations. Following a list of general regulations the Detroit rules and regulations specify the manner of keeping the general ledger, the cash book, the equipment account, the sales-control record, the loss-and-gain account, the orchestra-and-band account. They also prescribe the method of administering cash receipts, cash disbursements, petty-cash items, bank balances, the purchase of supplies and equipment, locker deposits, fines and telephone tolls, interest on bank balances and Liberty or Victory bonds, reserves, fees, waste paper and bazaars, entertainments, new books and supplies, and the scholarship fund. It will be further noted that the school principal is made responsible for supervising such activities.

We regret that space will not permit the reproduction of the rules and regulations governing each of the records and funds mentioned above or reproduction of the accounting forms that are prescribed. We shall have to be content with citing the general regulations of the system. Those regulations follow:

> 1. For all the extracurricular and nonacademic activities conducted by schools of the city there shall be a complete permanent and uniform system of financial records. Nonacademic activities comprise the sale of textbooks and educational supplies, the conduct of lunch rooms, the publication of school periodicals, locker rentals, athletics, occasional entertainments, and such other activities as may from time to time be sanctioned by the board of education.
>
> 2. The responsibility for the conduct of all nonacademic activities is vested in the principal of the school concerned. He shall be responsible for the maintenance of a system of records to control all of the financial transactions that occur in connection with each activity.
>
> 3. This accounting record shall include a control over all cash receipts and disbursements, the incurrence of debts, the making of contracts, the purchase and disposition of nonacademic supplies and equipment, and the custodianship of cash and other assets.
>
> 4. The accounting system shall show the net profit and loss resulting from the conduct of each activity for the entire school year, or oftener.
>
> 5. The accounts shall be kept by a bookkeeper, under the supervision of the principal.
>
> 6. The entire system of records and documents shall be subject at any time to the inspection and audit of the school auditor, who is responsible to the superintendent.

The number and kind of records that should be kept will depend, of course, upon the size of the school system and the number and kind of extra-classroom activities which the school system sponsors. Detroit, Michigan, uses the following record forms[1] and books in accounting for such activities:

1. Cash receipts.
2. Cash book.
3. Ledger.
4. Bank pass book.
5. Requisition.
6. Purchase order (includes a receiving copy, a vendor's copy, a requisitioner's copy, and a bookkeeper's copy).
7. Voucher check.
8. Stores and equipment record.
9. Sales-control record.
10. Loan of equipment.
11. Ticket receipt.
12. Sales record.
13. Locker receipt.
14. Sales record of secondhand books.
15. Bookstore inventory.
16. Lunch-room inventory.
17. Trial-balance sheet.
18. Pay-roll blank.

SELECTED REFERENCES

1. *Accounting Records and Forms*

Case, H. C. *Handbook of Instructions for Recording Disbursements for School Purposes.* C. F. Williams and Son, 1916. 25 pp.

A book that has had a large and beneficial influence on school accounting.

Clark, R. C. "Keeping Track of School Expenditures at Seymour, Connecticut," *American School Board Journal* (March, 1921), Vol. LXII, p. 38.

Describes an accounting system for small school systems.

Close, Egbert. "A New System of School Accounting for New Jersey," *American School Board Journal* (March, 1924), Vol. LXVIII, pp. 58, 123–124, 127.

A discussion of the replacement of an archaic accounting system by a uniform system consisting of twelve account divisions and three hundred and sixty subaccounts, each designated by a code number.

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[1] For sample copies of the forms, see A. B. Moehlman's *Public School Finance*, pp. 448–468.

ENGELHARDT, FRED. "Accounting Control of Income Needs of a School District," *American School Board Journal* (September, 1925), Vol. LXXI, pp. 39–41, 157.

Discusses the adjustment of receipts to insure a minimum loss through short-term loans and large balances.

ENGELHARDT, FRED. "An Accounting System for the Smaller School Districts," *American School Board Journal* (September, 1922), Vol. LXV, pp. 44–47, 115–116, 119–120.

Describes the introduction of a uniform financial-accounting system into Pennsylvania school districts of less than 5000 population.

ENGELHARDT, FRED. "The Balance Sheet in Public-School Reports," *American School Board Journal* (August, 1925), Vol. LXXI, pp. 40–41.

Discusses the need of a balance sheet and the form in which it should be prepared.

ENGELHARDT, FRED, and VON BORGERSRODE, FRED. *Accounting Procedure for School Systems.* Teachers College, Columbia University, 1927. 130 pp.

Describes an accounting procedure; various accounting forms are given.

HUTCHINSON, J. H. *School Costs and School Accounting.* Teachers College, Columbia University, 1914. 151 pp.

A pioneer survey of the whole problem with a set of recommended forms.

KINKADE, ARTHUR. "Public-School Fiscal Records from the Viewpoint of the Auditor," *American School Board Journal* (August, 1923), Vol. LXVII, pp. 43–45.

Discusses criteria for an efficient school accounting system.

MULLAN, J. S. "Mechanical Tabulation of School Financial Statistics," *American School Board Journal* (August, 1916), Vol. LIII, pp. 18–19, 82.

A description of machine bookkeeping in Rochester, New York.

PEEL, A. J. "Simplified School Accounting," *American School Board Journal,* February, 1923, pp. 37–38; March, 1923, pp. 40–41; May, 1923, pp. 39–41; June, 1923, pp. 55–56; September, 1923, pp. 41–42; October, 1923, pp. 47–48; December, 1923, pp. 37–38; February, 1924, pp. 49–50; November, 1925, pp. 40–42.

The best series of references; the discussion is nontechnical; various forms are illustrated.

PEEL, A. J. *Simplified School Accounting.* Bruce Publishing Company, 1925. 118 pp.

The articles listed in the preceding reference are brought together in this book and supplemented with other material; a bibliography is given.

Sawyer, G. E. "A Code System for School Accounts," *American School Board Journal* (December, 1926), Vol. LXXII, pp. 47–48, 139.

Discusses the advantages and use of a code system; exhibits a sample code system.

Smith, H. P. "The Accounting System and Budget of a Small City," *American School Board Journal* (November, 1920), Vol. LXI, pp. 41–43, 100.

Illustrations of loose-leaf forms for receipts and expenditures.

Uniform Records and Reports, *United States Bureau of Education Bulletin No. 3*, 1912.

This is the report of the national committee which has had much to do with the standardization of school accounting.

2. *Unit Costs*

Bobbitt, J. F. "High-School Costs," *School Review* (October, 1915), Vol. XXIII, pp. 505–534.

Stresses the value of financial accounting in high-school administration; compares costs in twenty-five high schools, of a thousand student-hours of instruction in various subjects; the "zone of safety" idea is here promulgated.

Bonner, H. R. "Determining Per Capita Costs," *American School Board Journal* (July, 1922), Vol. LXV, pp. 51–53.

Discusses the advisability of standardizing the methods used in securing data on per capita costs.

Brady, J. H. "School-Heating Costs," *American School Board Journal* (April, 1918), Vol. LVI, pp. 24, 48, 51.

A study of heating costs in the Kansas City schools based upon cost per cubic foot of space heated and different types of fuel used.

Henry, N. B. *A Study of Public School Costs in Illinois Cities.* The Macmillan Company, 1924. 82 pp.

An intensive study of school costs in twelve cities in Illinois.

Homan, T. B. "High-School Costs in Iowa Cities," *American School Board Journal* (July, 1920), Vol. LXI, pp. 47, 48.

Reports data for seven cities on unit costs per subject, per pupil, and per teacher.

Hunt, C. W. *The Cost and Support of Secondary Schools in the State of New York.* The Macmillan Company, 1924. 107 pp.

Presents data with respect to the per pupil yearly cost of high schools and of various high-school subjects.

Livers, W. H. "A Cost Unit in a School Financial Report," *American School Board Journal* (February, 1921), Vol. LXII, pp. 44–46.

Says that the "pupil-instruction-hour" is the best unit for determining the cost for any item of school expenditure.

Lounsbury, J. L. "Units of Cost and their Application," *American School Board Journal* (June, 1924), Vol. LXVIII, pp. 63–65.

Discusses problems and principles of analyzing school costs; recommends a cost unit that will measure instructional costs and overhead costs in their proper relationship and illustrates such a problem in one school situation.

Mahar, J. J. "Analysis of Cost of a Heating and Ventilating System," *American School Board Journal* (July, 1923), Vol. LXVII, pp. 47–48.

Suggests methods for school officials to use in evaluating bids for the installation of a heating and ventilating system; recommends such units as cost per pupil, per classroom, per cubic foot, and percentage of total cost of building.

Martin, A. S. "Inequalities in School Costs," *American School Board Journal* (September, 1917), Vol. LV, pp. 18, 82.

Discusses the large disparity between the cost for high schools and for elementary schools; shows this disparity for several cities.

Pittenger, B. F. *An Introduction to Public School Finance*, pp. 73–124. Houghton Mifflin Company, 1925.

Illustrates several types of cost studies.

Stevens, E. B., and Elliott, E. C. *Unit Costs of Higher Education.* The Macmillan Company, 1924. 212 pp.

Unique in that it suggests an excellent technique for making a charge for capital outlays in computing costs; generally applicable to elementary and secondary schools.

Stoops, R. O. *Elementary School Costs in the State of New York.* The Macmillan Company, 1924. 123 pp.

Presents data with respect to the cost of kindergartens and elementary schools, segregated by the size of communities within the state, by grades, and by subjects within the grade.

Wheat, H. G. "Cost of Instruction in the High Schools of West Virginia," *School Review* (August, 1918), Vol. XXVI, pp. 438–450.

Indicates some of the factors which cause high costs; data are reported for fifty-seven high schools.

White, R. J. "The Cost of High-School Instruction in Washington," *American School Board Journal* (January, 1919), Vol. LVIII, pp. 25, 26, 78.

A comparison of unit costs of five groups of high schools varying in size; costs are based upon instruction only.

Wilcox, G. M. "Cost of High School Instruction," *Educational Administration and Supervision* (November, 1918), Vol. IV, pp. 445–466.

Applies a method of computing the cost of instruction to thirty high schools in South Dakota and to three high schools in Des Moines, Iowa.

3. *Internal Accounting*

Barr, A. S. "Textbook Accounting," *Elementary School Journal* (October, 1922), Vol. XXIII, pp. 127–135.

A plan for textbook accounting which makes possible an equitable distribution per grade and per subject; aids in determining life of textbook and number on hand.

Grill, G. W. "Internal School Accounting and Office Organization," *American School Board Journal* (August, 1922), Vol. LXV, pp. 41–43, 133.

A financial accounting system for nonacademic activities is briefly outlined.

Hunter, H. A. "A Simple System for High School Accounts," *American School Board Journal* (September, 1926), Vol. LXXIII, p. 70.

Sample forms are shown.

Jolley, L. F. "An Accounting System in High School Organization," *School Review* (February, 1923), Vol. XXXI, pp. 136–142.

Describes the centralized accounting system used in several Illinois high schools and in Detroit, Michigan; the system provides for all high-school activities.

Jones, Gertrude. "Internal Accounting in High Schools," *American School Board Journal* (April, 1923), Vol. LXVI, pp. 68, 70, 73.

A financial-accounting system is described.

McKeown, H. C., and Horner, M. B. "Financial Administration of Extra-Curricular Activities," Twenty-fifth Yearbook of the National Society for the Study of Education, Part II, chap. x.

Moehlman, A. B. *Public School Finance*, pp. 443–469. Rand McNally & Company, 1927.

Describes the Detroit, Michigan, system of internal accounting; reproduces all forms used and the rules and regulations governing the Detroit system.

CHAPTER VII

PLANNING AND CONSTRUCTING A SCHOOL BUILDING

Steps in Planning and Constructing a School Building

During recent years, according to the reports of the United States Commissioner of Education, nearly one fifth of the revenue of the typical school district has been expended annually for new buildings and equipment. Because buildings wear out and become obsolete and because the school population is gradually increasing, new buildings are constantly needed; therefore the percentage of the school budget that is required for new buildings will probably continue to be large. Unless the buildings are properly planned and constructed, public money will be wasted and the interests of the children will suffer. Many of the larger school buildings that are being erected today cost several hundred thousand dollars, and opportunities for waste in constructing them, whether the buildings are large or small, are legion; that many of these opportunities for waste have been taken advantage of is seen in practically every building.

Familiarity with the steps that are necessary in planning and constructing a school building is requisite if costly mistakes are to be avoided. It is the purpose of this chapter to mention and to discuss briefly those steps. They are as follows:

1. Determining the building needs.
2. Employing an architect.[1]

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[1] This step is so large that it is discussed in a separate chapter which follows.

3. Making a schedule of rooms.
4. Selecting a site.[1]
5. Preparing and approving plans and specifications.
6. Arranging for financing.[1]
7. Supervising and inspecting construction.[1]

Determining the Building Needs

Before decision is made to erect a building it should be known whether the proposed building is necessary. Whether the building is necessary may be ascertained by a check of the extent of use of the present plant. The erection of other buildings cannot be justified if the present plant is not completely utilized. Chapter XI suggests a technique which may be used in determining whether a school plant is being used to capacity.

After the efficiency of use of the present plant has been checked and the conclusion has been arrived at that the present plant is inadequate, the next task is to ascertain the number and type of pupils which must be accommodated in the new building. Not only should the number and type which must be immediately accommodated be known but the number and type that will probably need to be accommodated in the next few years. If the building is made larger than the present enrollment demands, there will of course be waste due to interest charges on the unnecessary expenses. The best procedure is to make the building just large enough to care for present enrollment and to make it capable of economical expansion so as to accommodate future enrollments.

In addition to meeting enrollment needs the new school building should be related to the school-building program of the whole community; it should be located, planned, and constructed in relation to the rest of the buildings and the proposed buildings. By means of a careful survey the school-building needs of the whole community should be determined for the next ten, twenty, thirty, or forty years, and a comprehensive building program for the community based upon the survey. Every new school building should then be planned and located in relation to this comprehensive survey and program. Since new buildings tend to fix the school organization for better or for worse over a long period of years, the necessity for their proper location and planning is especially imperative. Many school systems have considered it a good policy to employ outside experts to assist in making the survey suggested above and to recommend a desirable building program; generally this assistance may be had without charge from the members of departments of education of the universities, the state departments of education, and superintendents of schools.

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[1] Steps 4 and 6 are so large that they are discussed in separate chapters which follow; step 7 is discussed in Chapter VIII.

Making a Schedule of Rooms

The next step after determining the location and the size of the proposed building, and the selection of the architect, is to make a schedule of rooms for the guidance of the architect. Ideally the selection of the site would immediately follow the making of the schedule of rooms. Since the schedule of rooms must be based upon educational needs, it should be made by the superintendent of schools or by his assistants on the educational staff. In determining the schedule the suggestions of the principal and teachers of the school should be procured. The schedule should list each room needed, state its purpose and its proposed location in the building, indicate the pupil capacity needed, list the equipment required, and give any further suggestions or directions for the guidance of the architect. When the schedule has been prepared by the superintendent of schools and his staff and has been approved by the board of education, it is ready to be handed to the architect for his guidance in preparing the preliminary plans. The schedule of rooms might well be given to the architect in such form as the following (this particular sample is a part of a schedule which was given to an architect who was drawing the plans for a high-school building designed to accommodate fifteen hundred students):

KIND OF ROOM	APPROXIMATE DIMENSIONS IN FEET	NUMBER OF ROOMS NEEDED	SUGGESTIONS AND DIRECTIONS
Study rooms . . .	24 × 50	6	Sixty desks and chairs in each; folding partitions to divide each into two recitation rooms if needed
Recitation rooms .	24 × 24	20	Twenty-five tablet chairs in each
Conference rooms .	10 × 12	6	Two on each floor
Auditorium . . .	—	1	Seating 1200
Library	24 × 80	1	In approximately the center of the building

Preparing and Approving Plans and Specifications

Objectives in planning. According to the Report of the Committee on Schoolhouse Planning and Construction of the National Education Association (pp. 14–19), a school building should have nine essential qualities. The architect should keep these objectives in mind in planning the building, and school officials should check the architect's plans with these qualities before they approve the plans. In the words of the committee, these qualities, with a brief statement about each, are as follows:

1. *Adaptation to educational needs.* The plan should conform to the schedule of rooms already adopted.

2. *Safety*. The corridors and stairways should permit the building to be vacated in three minutes even if one stairway is made useless by smoke. Each stairway should be continuous and connect directly with an exit on the outside of the building. Each room should discharge its pupils to a corridor leading directly to the stairway.[1]

3. *Healthfulness*. Every room should have abundant natural light. The orientation should provide direct sunlight, except in the case of a few rooms in which a northern exposure may be preferred.

The toilets should be distributed conveniently on each floor and should have windows opening directly to the open air. Where possible they should receive direct sunlight.

There should be a sufficient number of bubblers for drinking purposes, so located that their use will not block traffic.

Washbowls should be adequate in number, and some should be provided near the lunch room.

The gymnasium should have an abundance of direct sunlight, windows should be placed on at least two opposite sides to give cross ventilation, and the windows should extend to, or nearly to, the floor level on at least one side.

To avoid damp, insanitary, or poorly ventilated rooms there should be no basement as this term is usually understood, with the possible exception of space for the heating plant. This plant should, when possible, be located entirely without the confines of the building.

In rural communities the one-story type is often desirable, as it is a reasonable guarantee of safety in case of fire.

To avoid excessive climbing of stairs the building should not contain more than three stories and a basement, except in congested cities where land is very expensive. In the latter case elevators should be provided. For medium-sized buildings two stories without basement are recommended.

4. *Convenience*. The location of rooms with reference to one another should be carefully studied. In high schools the various rooms used by a given department should be on the same floor and

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[1] For an elaboration of these requirements see the Report of the Committee on Schoolhouse Planning and Construction of the National Education Association, pp. 122–134.

contiguous to one another. Supply closets should connect with the rooms that they serve.

5. *Expansiveness.* The building should be so planned that it can be enlarged as much as may be needed without unnecessary cost and without cutting off the natural light and ventilation of any of the existing rooms.

By placing the stairways adjacent to the outside walls at the ends of the building instead of placing them in the corridor it is frequently possible to add a single tier of classrooms without any change in stairways and without adding stairways.

To cover the needs growing out of the future addition of a few rooms it is frequently desirable to plan certain facilities, such as administrative rooms, toilet rooms, and various special rooms, so that they will serve the enlarged school. It then becomes only necessary to add classrooms.

The heating plant should always be planned so that it can be doubled or trebled in size to take care of future extensions. . . .

6. *Flexibility.* Since it is not possible to foresee all the requirements of the future, every school building should be so planned and constructed that changes can be made if necessary in the lengths of the rooms. For this reason the heating and ventilating ducts should not be placed in the partitions between classrooms. These partitions between rooms should be nonsupporting, so that two classrooms can be converted into one or three into two at minimum expense.

Moreover, in order to provide for flexibility in planning the original building as well as for future changes, the plan should provide long areas which can be subdivided as desired into classrooms and special rooms, giving each room as much as it needs and no more. A plan that does not provide these long areas is almost sure to involve poor arrangements and articulation of rooms and necessitate making many rooms either too small or needlessly large. These long areas may be obtained by proper placement of stairways and toilets.

7. *Æsthetic fitness.* The skill of the architect as a designer is shown in his ability to clothe the building with a pleasing exterior without doing violence to the interior. The exterior elevation should reflect the major functions of the school itself. It should give evidence of the fact that the building is a pleasant and attractive

> place in which young people are happily and busily engaged in worthwhile enterprises. Fortunately, an exterior which thus reflects the interior functions should be and generally is more satisfying and interesting than one that ignores these functions. The architect should be able to secure whatever elements may be desirable without sacrificing interior arrangements.
>
> The interior should likewise produce attractive and pleasing effects. The decoration should be modest and cheerful. The finish must be such as to lead the pupils to take pride in keeping the building free from injury and all disfiguration.
>
> 8. *Economy*. Economy in the plan is to be secured by
>
> *a*. Accurate determination of the size needed for each room. This depends in turn upon the adoption of scientifically studied layouts. . . .
>
> *b*. Duplicate uses of rooms.
>
> *c*. Elimination of waste areas. The percentage of floor area devoted to "instruction" (which includes not only classrooms, laboratories, and shops but also the auditorium, gymnasium, and library, and their accessories and study halls, also lunch rooms if used as study halls) should be not less than 50 per cent of the total floor area, and may . . . reach 60 per cent or even more.[1]

Probably no other phase of the work of the committee has gained as wide publicity and has become a by-word in the planning of school buildings as has the "candle of ratios" for determining the proportions of the building which should be devoted to various functions. The "candle of ratios" — that is, the percentage of the building which the committee recommends should go to each part — is as follows:[2]

Walls and partitions	Not over 10 per cent
Flues	Not over 3 per cent
Stairs and corridors	Not over 20 per cent
Accessories	Not over 1 per cent
Administration	Not over 16 per cent
Instruction	Not less than 50 per cent

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[1] For detailed suggestions on detecting waste in plans, see the Report of the Committee on Schoolhouse Planning and Construction of the National Education Association, pp. 57–84.

[2] Ibid. p. 1.

The general plan. One of the first decisions which architects and school officials must make when starting to design a building is regarding the type of general plan — that is, the shape of the exterior outline which shall be adopted. Upon the selection of a proper type of general plan depends, in considerable measure, the merit of the building. The choosing of an improper plan may result in such things as a poor adaptation of the building to the site, poorly lighted areas, and irregular angles which cannot be advantageously used. Two types of general plans are recognized — the *open* and the *closed*. The following types of open plans have been evolved:

1. The E.
2. The H.
3. The I.
4. The T.
5. The U.
6. The Y.

The following types of closed plans have been evolved:

1. The solid rectangle.
2. The hollow rectangle.
3. The rectangle with interior auditorium and courts.

During recent years the tendency has been toward the adoption of the open plan and away from the closed plan. The chief advantages generally claimed for the open plan are that it usually affords the best natural light and ventilation, and makes future extensions and expansions more possible. According to the committee, the following criteria should be kept in mind in selecting the general plan for any particular school:[1]

1. Orientation.
2. Natural light and natural ventilation of the rooms.
3. Expansiveness.
4. Flexibility.

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[1] Report of the Committee on Schoolhouse Planning and Construction of the National Education Association, p. 39; for an extensive discussion of each of these criteria, see pages 39 ff.

5. Light corridors.
6. Effective supervision.
7. Reduction of vertical travel.
8. Æsthetic fitness.
9. Economy.

The site, or plot, plan. To make sure that the building will be properly placed on the site the architect should be required by school officials to draw a site, or plot, plan showing the following:

1. The boundaries and topography of the site. The boundaries should show the size and the shape of the site. The topography should be indicated by contour lines; likewise the proposed finished grade contiguous to the building should be shown.

2. The points of the compass.

3. The exterior outline of the building and future extensions as they will be located on the site. The spaces reserved for outdoor physical education, gardening, and other outdoor activities should also be indicated. If there are other buildings on the site, and these are not to be razed, they should be shown in relation to the proposed building.

4. The location of the sewage-disposal plant (if one is to be installed for the building), and the location of sewers, gas, electric, and water mains in their relation to the building.

Skeleton floor plans and equipment plans. The preparation of skeleton floor plans and equipment plans are necessary in order that the relation of each part of the building to every other part may be seen and approved before the working drawings are made. All such plans and drawings are, of course, made by the architect on the basis of the data submitted to him by the school officials. The skeleton floor plans should show for each floor the following details: the points of the compass; the location and width of corridors and stairways; the location, pupil capacity, and dimensions of each room used by pupils; the location and dimensions of administrative rooms, toilets, and similar rooms; and the location and dimensions of lockers or of similar facilities for the care of pupils' wraps.

In the planning of many school buildings little or no attention has been given to the selection and location of equipment. Too often the planning of these important details has been an afterthought; indeed, in many buildings no thought has been given to the equipment until the buildings were erected or nearly erected. Following such a policy with reference to equipment often causes much complaint on the part of teachers and other employees who must use the equipment. Lack of foresight in such matters often results in equipment space which is too large, too small, or poorly adapted in some other way.

The list of equipment which is to be used in the building should be made by the educational authorities and handed to the architect for his guidance. In making this list, the principal, supervisors, heads of departments, teachers, and other interested and competent persons should be brought into consultation. Many of the large cities, which always have under way a large amount of building construction, have appointed committees constituted of these persons to make studies of the best types of equipment for the various rooms and functions. Such committees work toward the standardization of much of the equipment.

The equipment plans should show the location and width of all aisles and passageways and should indicate the location and dimensions of all equipment whether fixed or movable. Among the more common types of equipment which should be kept in mind in making plans are pupils' and teachers' desks, benches, and tables; lockers and wardrobes; bookcases, filing cases, and shelves; cupboards, cabinets, and vaults; blackboards and tackboards; electrical clocks; machines and forges; stoves and ranges; drinking fountains; ice boxes and refrigerators. In the architect's contract it is well to stipulate that these equipment layouts shall be shown even though no commission may be paid on the cost of the equipment.

Before the working drawings are begun the architect should submit the site plan, the skeleton plans of each floor, and the equipment plans to the educational staff and the board of education for their approval.[1] The general qualities which school officials should expect these plans to have before they are approved were discussed earlier under the caption of "Objectives in planning." These qualities are adaptation to educational needs, safety, healthfulness, convenience, expansiveness, flexibility, æsthetic fitness, and economy. The making of such a check will often be the means of ascertaining deficiencies in the plans and will suggest their correction; even the most competent architects do not claim that they are infallible, but the worker finds it difficult to detect faults in his own handiwork.

The working drawings. When the site plan, the skeleton floor plans, and the equipment plans have been approved by the educational authorities and the board of education, the architect may begin to prepare the working drawings. The working drawings, together with the specifications, are the guide to be followed by the contractor of the building, and they must be prepared before the contract for the building can be let. The working drawings should include site and floor plans, sections, elevations, details and plans for heating, ventilating, plumbing, and electrical installations. A better concept of the matters that must be cared for in the working drawings may be secured from the following standards which one school system prescribes. Space will permit only the quotation of the section of the specifications relating to the working drawings for floor plans. That section reads as follows:[1]

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[1] Strayer and Engelhardt have prepared an excellent check list which school officials may use in checking plans submitted by architects. This list is published as *Architect's Form No. III* by C. F. Williams and Son, Albany, New York. If the building is for an elementary school, the checking may be advantageously done by means of the Strayer-Engelhardt *Score Card for Elementary School Buildings,* which is published by Teachers College, Columbia University.

> 1. There shall be required a plan of each floor of the building and of the roof. For buildings less than 100 feet in greatest dimension these drawings must be made on one-fourth-inch scale. A plan of the foundation walls and footings shall be secured in addition to those mentioned above unless such items can be shown on basement plan.
>
> 2. If concrete construction is to be used, plans of all floors and roof where concrete is to be used shall be required and may be drawn at one-eighth-inch scale. These plans shall indicate the location of all columns, girders, and joists; and a schedule of size of each, properly numbered, must be given on each drawing. (If necessary for a clear understanding of structural requirements, separate floor plans and roof plans, column schedules, etc. shall be furnished.)
>
> 3. On all floor plans, all rooms, windows, and doors must be numbered consecutively, as:
>
> Basement, 1, 2, 3, etc.
> First floor, 101, 102, 103, etc.
> Second floor, 201, 202, 203, etc.
>
> Throughout sections and elevations, and in specifications and correspondence, references to any or several rooms, windows, or doors shall be by number.
>
> 4. All plans shall be completely figured so that sizes of rooms, thickness of partitions and walls, etc. can be readily determined.
>
> 5. On the floor plan there shall be a note or schedule of the kind of floor and base material and wainscot and finish of room. If the building is not of fireproof construction, the direction and size of joists in each ceiling shall be indicated unless shown on structural plans.

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[1] Strayer and Engelhardt, *School-Building Problems*, pp. 202–204.

6. Each floor plan shall show (1) section lines, indicating planes parallel to which drawings called for in section III below [omitted here] are made; (2) the level of all finished floors, stair landings, and roof; (3) furred ceilings; (4) the swing of all doors. The size of each door shall be marked. Glazing and transoms shall be noted, unless shown by detail drawings; (5) the interphone system; (6) the location of drinking fountains; (7) blackboards; (8) bulletin or display boards; (9) the location of master clock; (10) the location of fire-alarm boxes and gongs; (11) the location of electric base and floor plugs; (12) the location of hose connections inside the building and sill cocks outside the building; (13) hatching for all tile, brick, stone, and concrete shown in section on plans so that they are readily distinguishable; (14) on ground or first-floor plan, a key to materials and a compass; (15) teachers' closets or storeroom.

7. A schedule shall accompany all floor plans, showing (1) the number of each room; (2) the name and purpose of each room; (3) the dimensions of each room; (4) the number of windows of each dimension; (5) the net glass area; (6) the ratio between the net glass area and floor area. Such schedule shall be in tabular form and shall be so arranged that for each column or row filled in by the architect, there shall be a blank column or row to be filled in by the checking authorities.

When the working drawings have been completed by the architect they should be carefully checked by the school officials or by someone employed by them, to make certain that they are exactly right in every detail.[1] Although the changes in the drawings are usually difficult and sometimes expensive to make, they should be made; if they are not made there are apt to be regrets on the part of both the architect and school officials. A few states require that all working drawings and specifications must be approved by some division of state government, usually the state department of education, before construction may be legally begun.

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[1] For a further suggestion on the checking of plans, see the footnote on page 135.

The specifications. Supplementing the working drawings are the specifications for the materials to be furnished, the methods to be used, and the labor to be performed in the erection or equipping of the project. They, together with the working drawings, become the contractor's directions for the erection or equipping of the building; moreover, they must be prepared for the inspection of all prospective bidders before bids on the project can be received and before estimates of the cost of the project can be made by school officials.

The chief criteria which the specifications should meet are completeness, conciseness, and clarity; there should be no ambiguity, nor should any detail be overlooked. It is apparent that the architect who writes them must be well acquainted with various materials and processes if waste is to be avoided. Usually (perhaps always in large buildings) they should be printed and sufficient copies procured for the perusal of all prospective bidders.

The writer has before him the specifications of the William Beaumont High School building of St. Louis, a large building whose erection was begun in 1923 and completed in 1926. This set of specifications may be considered an excellent sample of what such specifications should contain. These particular specifications are printed in two books, $4\frac{1}{2}$ inches × $6\frac{1}{2}$ inches in size. The first book contains three hundred and twenty-one pages and lists the specifications for the following lettings: general construction; plumbing, sewering, and gas fitting; heating and ventilating apparatus; engines and dynamos; boilers and stokers; vacuum-cleaning system; switchboard; electrical work. The specifications contained in this particular book are described under the following headings: general conditions; grading and excavating; damp-proofing; cement; foundations; cut-stone work; brick work; concrete construction;

vault door; iron and steel work; metal furring and lathing; sheet-metal work; skylights; conservatory; metal doors; composition roofing; cement work; slate blackboards; marble and tile work; stair treads and platforms; plastering; painting; glazing; leaded glass; weather strips; corner beads; cork carpet; wood-block floors; carpenter work; hardware; plumbing, sewering, and gas fitting; heating and ventilating apparatus; boilers and stokers; engine and dynamos; vacuum-cleaning system; switchboard; electrical work. The book also contains instructions to bidders and a copy of the proposed contract and bond; it is well indexed.

The second book contains two hundred and thirty-four pages and is devoted to equipment. It describes the specifications for the following equipment lettings: cabinet work; lunch-room and kitchen equipment (divided into six groups or lettings); miscellaneous domestic equipment; iron and wire work; gymnasium equipment; opera and tablet armchairs; steel lockers and shelving; steel stage curtain; electric freight elevator; lathes for machine shop; machine and auto equipment; wood-turning and joinery-shop equipment; forge-shop equipment; molding-shop equipment; blue-printing machine; refrigerating apparatus for lunch room. This book, like the first, contains instructions to bidders and a copy of the proposed contract and bond; it also is well indexed.

Securing Bids and Letting Contracts

Bids. When the working drawings and specifications have been approved by the superintendent of schools and the board of education, the time has arrived to secure bids and to let contracts. In requesting bids for constructing and equipping buildings, boards of education should include in the specifications a statement of the conditions surrounding the bids or should issue such statement in separate form; in order that greater publicity may be given the competition, progressive boards employ both methods mentioned above. Keen competition is desired.

In advertising the lettings, newspaper, magazine, and circular-letter "ads" may be advantageously used. Following is a sample of such an "ad," or a notice to contractors. This particular sample has been taken, with the exception of a few minor changes, from the *Specifications for the William Beaumont High School* (St. Louis), pp. 14–17.

NOTICE TO CONTRACTORS

Notice is hereby given that the Board of Education of the City of St. Louis hereby calls for sealed proposals to be delivered to the Building Department of said Board of Education Building, St. Louis, Missouri, until 2 o'clock P.M. on the fifth day of December, 1923, for the erection of William Beaumont High School to be erected on Natural Bridge Avenue between Spring and Vandeventer Avenues.

Plans and specifications may be viewed at the Building Department, Board of Education Building. Bidders desiring to carry away plans and specifications will be required to deposit twenty dollars ($20) in cash with the Commissioner to insure the safe and prompt return of the plans and specifications. Bidders desiring to carry away only the specifications will be required to deposit two dollars ($2) in cash.

Bids will be entertained as follows:

Letting No. 2340. The building complete, as specified, excluding plumbing, sewering, and gas fitting; heating and ventilating apparatus, air washer, heat-regulation and ozone apparatus; boilers; engines and generators; vacuum-cleaning system; switchboard; electric-light wiring and fixtures, clocks, bell and telephone systems. Required deposit with the bid, $10,000.

Letting No. 2341. Plumbing, sewering, and gas fitting complete. Required deposit with the bid, $2000.

Letting No. 2342. Heating and ventilating apparatus, including air washer, heat-regulation and ozone apparatus. Required deposit with the bid, $2400.

Letting No. 2343. Boilers. Required deposit with the bid, $780.

Letting No. 2344. Engines and generators. Required deposit with the bid, $780.

Letting No. 2345. Vacuum-cleaning system. Required deposit with the bid, $500.

Letting No. 2346. Switchboard. Required deposit with the bid, $350.

Letting No. 2347. Electric-light wiring and fixtures, clocks, bell and telephone systems. Required deposit with the bid, $1625.

Letting No. 2348. The building complete, including Lettings Nos. 2340, 2341, 2342, 2343, 2344, 2345, 2346, and 2347. Required deposit with the bid, $10,000.

Blanks will be furnished at the office of the Building Department, and all bids must be made out on these blanks.

No bid will be entertained which is not based on the plans and specifications or which contains any erasure or written memorandum qualifying the same, or is not properly made out and signed by the bidder.

No bid will be entertained unless accompanied by a deposit in amounts as above stated, said deposit to be in cash or certified check made payable to the Board of Education of the City of St. Louis, which amount may be deposited with the Secretary and Treasurer, who will deliver a certificate therefor.

No bid can be withdrawn prior to the close of the regular meeting of the Board of Education next succeeding the opening of bids. A violation of this provision on the part of the bidder, or a failure to comply with the award made him, shall forfeit to the Board his deposit as liquidated damages for breach of contract.

The special attention of bidders is directed to the fact that no claims for relief on account of mistakes or omissions in the bidding will be considered, and that contractors will be held strictly to their bids or their deposits forfeited.

All bids shall be sealed and marked "Proposal for Letting No. ——" and addressed to R. M. Milligan, Commissioner of School Buildings, and be deposited by the bidder in the box in the lobby of the Building Department at or before 2 o'clock P.M. on the fifth day of December, 1923.

The Board reserves the right to reject any or all bids.

The deposits of all unsuccessful bidders will be returned on or after December 7, 1923.

The successful bidder shall sign a contract for the work bid upon, and execute the required bond for the same within ten days from the date of notification of the acceptance of his bid. The contract and bond will be made in accordance with the standard forms of the American Institute of Architects. The general conditions and specifications, and the drawings to which reference is made, shall be deemed a part of the contract for any and all branches of the work, and shall be referred to in interpreting the contract.

The successful bidder on each letting will be required to furnish bond to complete the work included in his contract on or before January 1, 1926, giving as surety an approved Surety Company Bond, with liquidated damages in the sum of $50 per day for delay beyond the time of completion of all or any part of the work. For contracts less than $10,000 the bond shall be equal to the contract price; for contracts of $10,000 or more, but less than $50,000, the bond shall be equal to $10,000 plus 50 per cent of the amount by which the contract price exceeds $10,000; and for contracts of $50,000 or more the bond shall be $30,000 plus 25 per cent of the amount by which the contract price exceeds $50,000. In lieu of giving the bond provided for in this rule the contractor may deposit a like amount in cash with the Secretary and Treasurer of the Board.

R. M. MILLIGAN
Commissioner of School Buildings

Contract and bond forms. No better form of contract between the contractor and owner and no better form of bond for the contractor can be recommended than those issued by the American Institute of Architects. The two forms aforementioned have received the approval of the National Association of Builders Exchange, the National Association of Master Plumbers, the National Association of Sheet Metal Contractors of the United States, the National Electrical Contractors Association of the United States, the National Association of Marble Dealers, the Building Granite Quarries Association, the Building Trades Employers Association of the City of New York, and the Heating and Piping Contractors National Association. Space will not permit the reproduction here of these forms, but general familiarity with the provisions of the contract may be secured from the following index to the contract:[1]

Index to the Articles of the General Conditions

1. Definitions.
2. Execution, correlation, and intent of documents.
3. Detail drawings and instructions.
4. Copies furnished.
5. Shop drawings.
6. Drawings and specifications on the work.
7. Ownership of drawings and models.
8. Samples.
9. Materials, appliances, and employees.
10. Royalties and patents.
11. Surveys, permits, and regulations.
12. Protection of work and property.
13. Inspection of work.
14. Superintendence: supervision.
15. Changes in the work.
16. Claims for extra work.
17. Deductions for uncorrected work.
18. Delays and extension of time.
19. Correction of work before final payment.
20. Correction of work after final payment.
21. Owner's right to do work.
22. Owner's right to terminate contract.
23. Contractor's right to stop work or terminate contract.
24. Applications for payments.
25. Certificates of payments.
26. Payments withheld.
27. Contractor's liability insurance.
28. Owner's liability insurance.
29. Fire insurance.
30. Guaranty bonds.
31. Damages.
32. Liens.
33. Assignment.
34. Mutual responsibility of contractors.
35. Separate contracts.
36. Subcontracts.
37. Relations of contractor and subcontractor.
38. Architect's status.
39. Architect's decisions.
40. Arbitration.
41. Cash allowances.
42. Use of premises.
43. Cutting, patching, and digging.
44. Cleaning up.

[1] Quoted from *The General Conditions of the Contract for the Construction of Buildings*, published by the American Institute of Architects, The Octagon House, Washington, D.C.

Estimating the Cost of a School Plant

It is necessary to have an accurate estimate of the probable cost of the school plant before provision can be made for financing the project. The failure to make this estimate accurately has resulted in many communities having to vote a second bond issue to complete the building or to equip it; in some communities the completion of buildings has been held up several months until additional funds could be provided. In this matter school officials are always in a dilemma: on the one hand, they do not know how much a school plant will cost until the contract for it has been made; on the other hand, they cannot let the contract until the wherewithal is in hand or in process of collection. All that they can do is to *estimate* the cost of the plant and to arrange for that much revenue. Other reasons for making an accurate estimate of cost are to suggest economies that may be made and to afford a basis for judging whether the bids for the building contract are reasonable. The items upon which cost estimates are necessary are land for the site and for grading it, building construction, furniture and fixed equipment, and architectural and engineering services. We shall discuss briefly herewith the two items whose cost it is difficult to estimate. These items are building construction and equipment.

Cost of building construction. Various methods are being used to estimate the cost of constructing school buildings; chief among these methods are the lump-sum basis, cost per classroom, cost per pupil, cost per square foot of floor area, and cost per cubic foot. In estimating the cost of building construction the cubage basis is probably the most accurate basis to use. The employment of this basis makes it necessary to ascertain the cubical contents of the building and to compute the cost unit per cubic foot. In determining the cubical contents of a building the Report of the Committee on Schoolhouse Planning and Construction of the National Education Association (pp. 140–141) recommends the following technique, which might well become the standard technique:

1. Ascertain the cubical contents of the building by multiplying the area of the first floor by the height of the building from the underside of basement floor to the mean of the roof.
2. In buildings whose basements are not entirely excavated multiply the area of the first floor by the height of the building from the underside of the first floor to the mean of the roof. To this content add the cubical content of any space between the underside of the first floor and the surface of the excavation and, in addition, add the cubic contents of any partial basement which may be found in the building.
3. When portions of the building are built to different heights, each portion is to be taken as an individual unit.
4. Projecting entrance porches are not to be included.
5. Porches and covered verandas used for school activities, and open-air rooms and auditoriums are to be included.

In estimating the cost per cubic foot of a building the technique developed by Herbert L. Patterson, Civil Engineer of the Boston Schoolhouse Commission — a plan also recommended for use by the Report of the Committee on Schoolhouse Planning and Construction of the National Education Association — may be used. The essence of the Patterson technique is that it calculates certain constants based upon costs of previously erected buildings of the same type of construction; when these constants are multiplied by the local prices of materials and labor the product gives the cost per cubic foot of the proposed building. The accompanying calculations, which were made by Patterson for the Roger Wolcott School in Boston, illustrate the use of the technique. This particular school was of first-class, or type A, construction, being built of brick with granite trimmings. The costs here cited include the construction of only the building; they do not include plumbing, electrical work, and heating and ventilating. According to the Boston Schoolhouse Commission, the construction of the building takes account of approximately 80 per cent of the total cost of the building. For plumbing work approximately 5 per cent of the total cost of the building is required; for heating and ventilating, approximately 10 per cent; and for electrical work, approximately 5 per cent. When the latter charges are included the cubic-foot cost of the building is 62.5 cents, instead of 50.025 cents.

CUBIC-FOOT COST OF A SCHOOL BUILDING

	Constant-Unit Price	Cubic-Foot Price
Excavation		
Labor	.00575 × $4 per day	$0.023
Concrete	.00150 × $12 per cubic yard	.018
Labor	.00154 × $5.50 per cubic yard	.00847
Brick	.00205 × $30 per thousand	.0615
Labor	.00355 × $10 per day	.0355
Stone	.0118 × $3 per cubic foot	.0354
Labor	.0004 × $10 per day	.0040
Steel	.000406 × $80 per ton	.03248
Labor	.0011 × $10 per ton	.011
Roofing	.00135 × $10 per 100 square feet	.0135
Labor	.00062 × $8 per day	.00496
Floors and roof		
Fireproof	.0465 × $2 per square foot	.0930
Labor	.0114 × $4 per day	.0456
Plastering	.0215 × $1 per square yard	.0215
Labor	.00105 × $10 per day	.0105
Carpentry (rough)	.00027 × $50 per thousand (board measure)	.0135
Labor	.001 × $8 per day	.008
Interior finish	.00025 × $150 per thousand	.0375
Labor	.0013 × $8 per day	.0104
Painting	.0025 × $2 per gallon	.0050
Labor	.00093 × $8 per day	.00744
Total		$0.50025

Note. The cubic contents, 665,933 cubic feet, at 50 cents, equals $332,966.50.

Cost of equipment. Under the caption "Skeleton floor plans and equipment plans" the importance of making a list of the equipment to be used in the proposed building was discussed. In order that funds for the equipment may also be procured it is necessary that the cost of each item of equipment be estimated. To ascertain an estimate of the probable bids on equipment, inquiry may be made of manufacturers and dealers regarding the cost of the equipment desired. Too often the list of equipment and the estimated cost of the same are entirely forgotten, with the result that when the building is completed additional funds must be procured or old and makeshift equipment be used. Too often, also, even when a list of the equipment needed and an estimate of its cost are made, the lump-sum method is used. A. K. Loomis[1] condemns thus the lump-sum method of estimating school-equipment costs:

> The method that is generally accepted at present allows a definite per cent of the estimated building costs to cover in a *lump-sum estimate* the cost of equipment. For example, one authority says that 8 per cent of the building cost may be allowed to cover the cost of equipment in the case of an elementary school, or 12 per cent may be allowed in the case of a high school. . . .
>
> We have seen that the lump-sum estimate can probably be used satisfactorily in those cities that have developed standard lists of equipment and that have standardized their building plans. The case is entirely different, however, in cities that have neither standard-equipment lists nor standard-building plans. An inquiry addressed to 100 city superintendents, selected as being most likely to have developed such standards, shows that only a few cities have either building or equipment standards of the sort referred to. In terms of the first three criteria — "reliability, adequacy, and flexibility" — we find the prevailing method is unreliable, inadequate, and inflexible in cities that have neither building nor equipment standards. The fact that it meets the criterion of simplicity is of no importance when it breaks down under the other three.

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[1] *The Technique of Estimating School-Equipment Costs*, pp. 1–3.

SELECTED REFERENCES

ALMACK, J. C. "Building Surveys and Building Measurement," *American School Board Journal* (January, 1925), Vol. LXX, pp. 52–54.

Describes a score card for the measurement of the details of a classroom and the equipment of a classroom.

ANDERSON, C. A. "The Problem of Classroom Seating," *American School Board Journal* (January, 1925), Vol. LXX, pp. 87–89, 126.

Illustrates various plans of placing pupils' seats; states principles.

BENNETT, H. E. *School Posture and Seating.* Ginn and Company, 1928. 323 pp.

The last three chapters especially treat in detail the subject of the choice and purchase of desk equipment by school boards.

BRINCKERHOFF, A. F. "Landscape Development of School Grounds," *American School Board Journal* (April, 1925), Vol. LXX, pp. 57–59.

A plea for the giving of more attention to landscape development of school grounds; illustrated.

CHALLMAN, S. A. "Enlarging the School Building," *American School Board Journal* (January, 1927), Vol. LXXIV, pp. 74–76, 158.

A plea for making provisions for enlarging the school building; illustrated.

CHALLMAN, S. A. "An Inquiry into the Utilization and Cost of a Modern School," *American School Board Journal* (January, 1926), Vol. LXXII, pp. 60–64, 167.

Contrasts the old type of school architecture with the new.

CHALLMAN, S. A. "Rooms and Equipment for Industrial Arts," *American School Board Journal* (January, 1924), Vol. LXVIII, pp. 71–74, 75, 135.

An excellently illustrated article.

COOPER, F. I. "Economies gained in Standardizing Schoolhouse Plans," *American School Board Journal* (August, 1919), Vol. LIX, pp. 34–36, 89–90.

To obtain maximum efficiency, a schoolhouse must be kept working to its best advantage at all times; a set of rules of the Committee on Standardization of the National Education Association is given.

DONOVAN, J. J., and Others. *School Architecture: Principles and Practices.* The Macmillan Company, 1921. 724 pp.

One of the best references; many illustrations of plans; especially good on special rooms and equipment.

HART, F. W., and PETERSON, L. H. "Economies in School Housing," *American School Board Journal* (July, 1926), Vol. LXXIII, pp. 42, 153.

Shows waste in blackboard space in many high-school buildings.

HOPKINSON, G. M. "A Standard Elementary-School Building adopted by Cleveland," *American School Board Journal* (February, 1926), Vol. LXXII, pp. 64–66, 140.

Shows by means of drawings and discussion a unit type of building which may be expanded to meet various needs.

HULL, O. R. "The Administration of School-Building Programs," *American School Board Journal* (January, 1927), Vol. LXXIV, pp. 59–60.

Discusses the relation of type of administrative organization to cost of instruction; shows tables of unit costs.

ITTNER, W. B. "High Costs and Sane Economies in the Building of Schools," *Elementary School Journal* (January, 1924), Vol. XXIV, pp. 365–367.

Says that adaptation — that is, fitting the school plant to the educational program and to the type of organization — and the elimination of waste by skillful and efficient planning are the essential elements of sane economy.

ITTNER, W. B. "A Quarter-Century in Schoolhouse Planning and Construction," *American School Board Journal* (January, 1925), Vol. LXX, pp. 39–42.

Discusses the development of plant efficiency due to the evolution of the "open plan" and to the development of educational thought and practice; significant improvement in such matters as safety, lighting, heating, and ventilation; increasing emphasis upon beautification of exterior and interior; and the scientific study and application of the principles of sane, sound, and lasting economy. Well illustrated.

KILHAM, W. H. "Æsthetics in Schoolhouse Design," *American School Board Journal* (January, 1926), Vol. LXXII, pp. 39–40, 164.

A plea for giving attention to æsthetics in designing schoolhouses; suggests special features to which attention should be paid.

LOOMIS, A. K. *The Technique of Estimating School-Equipment Costs.* Teachers College, Columbia University, 1926. 112 pp.

In addition to suggesting a technique for estimating school-equipment costs, it gives an exhaustive list of items of school equipment, together with their average 1925 prices.

LORING, C. G. "Coatrooms, Wardrobes, and Lockers," *American School Board Journal* (September, 1926), Vol. LXXIII, pp. 47–48, 167; (October, 1926), pp. 56, 139; (November, 1926), pp. 67, 146.

Standards that such features of school buildings should meet; illustrated.

RAINEY, H. P. "Economies in Constructing and Operating School Plants," *American School Board Journal* (January, 1926), Vol. LXXII, pp. 58–59.

Cites sample economies in the construction and use of school buildings.

ROSSMAN, J. G. "Comparative Costs and Work-Study-Play Organization," *American School Board Journal* (June, 1924), Vol. LXVIII, pp. 53–54.

A study of four schools in the same county was made, two of the work-study-play type and two of the conventional type; the results showed 13 cents more on the dollar went for real school work in the former type than in the latter.

SPAIN, C. L. "A Study of Comparative Costs of Platoon System and Old Type of School Building," *American School Board Journal* (November, 1919), Vol. LIX, pp. 48–49, 103.

An explanation of why the platoon system is more economical than the customary way of seating pupils and of using buildings; explains the system used in Detroit, Michigan.

STETSON, P. C. "Economies in School-Building Construction," *American School Board Journal* (January, 1924), Vol. LXVIII, pp. 62–64.

Describes how Dayton, Ohio, remodeled and put to good use, with very little expense, four old school buildings that otherwise would not have been used.

STRAYER, G. D., and ENGELHARDT, N. L. *School-Building Problems.* Teachers College, Columbia University, 1927. 697 pp.

Pages 179 to 594 are particularly pertinent; the planning and equipping of various types of buildings and rooms are discussed; contains many illustrations.

TRAPP, D. V. "The Locker in the Modern School," *American School Board Journal* (February, 1926), Vol. LXXII, pp. 72, 74, 76, 78; (April, 1926), pp. 76, 78, 80, 82, 148; (May, 1926), pp. 74, 76, 78; (July, 1926), pp. 74, 76.

Discusses advantages of lockers, standards which they should meet, and the purchasing of them.

American School Board Journal. Bruce Publishing Company.

During the last few years the January numbers of this magazine have been devoted to school buildings; the photographs of modern buildings are very helpful.

Report of the Committee on Schoolhouse Planning and Construction, National Education Association, 1925. 164 pp.

A report that has already had a large influence on the planning of school buildings. Discusses such matters as determining the schedule of rooms; detecting waste in plans; illumination, safety, and specifications.

CHAPTER VIII

SCHOOL ARCHITECTURAL SERVICE

Qualifications of the School Architect

After the decision has been made to erect a school building or to remodel an old one, the next task of the school administrative officers is to select an architect for the project. It is the architect's function to synthesize the recommendations of the construction engineers on the one hand and the desires of the educational experts on the other hand. Upon the architect depends more than upon any other individual the merit of the building. He determines more than any other person whether the building will be a beautiful or an unattractive creation, whether it will meet the needs of a modern educational program, whether it will be safe and sanitary, and whether it will be economically arranged and otherwise well constructed. Therefore school officials are under obligation to select the best architects for the money available. The day when anyone — a school-board member, a teacher, or a carpenter — could design a school building belongs to the bygones; school architecture is today a profession.

The preamble of *The Principles of Professional Ethics and the Canons of Ethics of the American Institute of Architects* states as follows the importance of the work of the architect and the general qualifications that an architect should have:

> The profession of architecture calls for men of the highest integrity, business capacity, and artistic ability. The architect is in-

trusted with financial undertakings in which his honesty of purpose must be above suspicion; he acts as professional advisor to his client, and his advice must be absolutely disinterested; he is charged with the exercise of judicial functions as between client and contractors and must act with entire impartiality; he has moral responsibilities to his professional associates and subordinates; finally, he is engaged in a profession which carries with it grave responsibilities to the public. These duties and responsibilities cannot be properly discharged unless motives, conduct, and ability are such as to command respect and confidence.

A school architect, writing anonymously, says of the school architect and his profession:[1]

> Architecture is an art, grounded in the science of building, and the practice of architecture is a profession; and no man can be called an architect who lacks the instincts of the professional man.
>
> What are the instincts that should distinguish the architect as a professional man? I like to think it is not merely the white collar and clean hands of the various professional callings that attract our high-school and college boys, but rather the challenge to service through special ability and high skill. Be that as it may, a professional man is one who professes that special ability and skill, and who invites opportunities of personal service thereby and expects to be remunerated personally in proportion to his service. Do not miss the point that his service is direct and personal, for this distinguishes him from the business man, and if one may say it — personal contact subjects his attitude and dealings to a gentler and finer standard than is current in the strictly business world. This is peculiarly the case with the architect, whose profession it is to refine and beautify with art, and perfect with science, the varied shelters of our lives and occupations. And when, as in school work, there comes the privilege of bringing this art and science to the service of children, and through them to society and the home-land, the attitude of the architect may well be one of sincere devotion in which considerations of the main chance are merely secondary or entirely in the background. Not that the architect may be ignorant

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[1] "Let the Architect Beware" (by a school architect), *American School Board Journal* (January, 1925), Vol. LXX, pp. 49–50.

of the business of building, or ignore his personal business relations — but that his main thought is centered upon the creation for which alone these exist.

Whether an architect has the requisite qualifications may be ascertained by inspecting some of the buildings which he has designed, and by inquiring of school officials for whom he has done architectural work. The Committee on Schoolhouse Planning and Construction of the National Education Association says that a school architect should have five essential qualities, as follows:[1]

> 1. Familiarity with modern educational practice and the activities conducted in a modern school in so far as they affect planning. He must visualize the way in which the school and its classes carry on their work, in order to handle details satisfactorily.
> 2. Open-mindedness to suggestions and willingness to revise plans so long as they can be improved. He must not cut short the consideration of educational features.
> 3. Originality and extended experience in school architecture. Every building presents new problems, and both experience and originality are needed to cope with them.
> 4. Professional spirit shown by his desire to secure the solutions that are best for the community and its children.
> 5. Executive ability to keep all working harmoniously so as to secure the best results. . . .
>
> His organization, including the experts he employs, should be masters of:
>
> *a*. Design as applicable to schools.
> *b*. Construction appropriate to schools.
> *c*. Heating and ventilating of schools.
> *d*. Engineering.

At this point we want to emphasize the necessity for a careful checking of the architect's plans and proposals by the superintendent of schools, the board of education, the members of the building department, if there are such, and other members of the professional staff. It is the duty and the desire of the architect to give the community the type of building which best meets the needs of the community; stereotyped plans, plans that have been made for use in other communities, although they may be suggestive, will not suffice. Of course, the architect is the professional adviser to the school authorities, and he should therefore be frank in citicizing any of their proposals; he should not, because of fear of offending and of losing "business," accept a suggestion when he knows the suggestion to be a bad one. The way to secure a modern building is to *design* it that way. Too many school buildings have been designed in an amateurish way. Too many features have had to be arranged for as afterthoughts, if they were to be provided at all. Too much absurd ornamentation has been provided in the name of beauty and too much space has been wasted. Eternal vigilance on the part of both the architect and the school officials is one of the prices of a well-designed school building.

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[1] Report of the Committee on Schoolhouse Planning and Construction of the National Education Association, p. 12.

Plans for Securing Architectural Service

In a recent exhaustive investigation of the plans which cities have provided for the administration of school architectural service five general plans were found to be in use.[1] A brief description of each of these plans is given herewith:

1. *A separate architect for each building.* Under this plan the architect is held entirely responsible for the completion of his building. He develops all plans and specifications, inspects all materials, supervises construction, and approves the acceptance of the building from the con-

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[1] O. R. Hull, "The Administration of School-Building Programs," *American School Board Journal* (July, 1926), Vol. LXXIII, pp. 55–56, 170–173.

tractor by the board of education. For his services he is paid a fee, amounting usually to 6 per cent of the cost of the building.

This plan is by far the most common of any. It is used everywhere in the smaller cities and in the rural communities. Since it is used primarily in the smaller school districts, in which there cannot be maintained a large administrative organization, the architect usually works under the immediate direction of the superintendent of schools or the board of education. In the larger communities, in which a larger administrative organization is possible, the business manager of schools or an assistant superintendent of schools is frequently placed in charge of the building program and has general supervision of the architects. Denver, Colorado, is an example of a community that has recently engaged in a large school-building program on the latter basis.[1] Under this plan boards of education frequently hire an additional supervisor of construction at their own expense, this inspector generally working on a salary basis.

2. *A supervising architect.* Under this plan the board of education employs a supervising architect, who is expected to have general supervision of the project architects. The supervising architect provides preliminary plans and standard specifications for the project architects, and the latter in turn, under the direction of the supervising architect, are responsible for the working out of all details and for the completion of the projects.

This plan has the advantage of distributing the school patronage and of bringing into school architecture the ideas of many architects. Moreover, the supervising architect is in a position to provide for a continuity of standards in the plans and specifications; for example, working with the educational staff he can develop unit plans and layouts which may be used throughout the school system.

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[1] For a description of the Denver plan, see O. R. Hull's article "The Administration of School-Building Programs," pp. 61–62.

The plan is used particularly in communities that have a large, though a short and intensive, building program; such communities often feel that they cannot afford to establish an expensive building organization of a permanent nature. Atlanta, Georgia, which recently engaged in a large school-building program, followed this plan. In that city the cost of the architectural organization was 6 per cent, distributed thus: to the project architect, 4.5 per cent; to the supervising architect, 1 per cent; and to the school-housing and school-program expert, 0.5 per cent.[1]

3. *A combination of plans 1 and 2.* Under this plan a supervising architect is employed and project architects are also employed on a commission basis like that described in plans 1 and 2. However, in contrast with plans 1 and 2 this plan relieves the project architects of all responsibility of supervision and inspection of construction. Of course the architect may give such supervision and inspection as he sees fit, but such as is given is merely advisory and no pay is given for it. The plan is also used by communities large enough to maintain a supervising architectural staff and the necessary construction inspectors and supervisors as well. It gives a continuity and a coördination to the school-building efforts of the community, often assures better supervision, and in many instances is more economical. The most common fee of architects is 6 per cent, 4 per cent of which is usually given for designing plans and specifications and 2 per cent for supervision and inspection of construction. The board of education, under this plan, employs its supervisors and inspectors of construction on a salary basis. Los Angeles, California, is an example of a city that has its building department organized on this basis.

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[1] For a description of the Atlanta plan, see O. R. Hull's article, p. 61.

4. *A complete school-building organization.* Under this plan the community maintains, on a salary basis, a complete organization for the construction of school buildings; this organization plans buildings and supervises and inspects the construction of them. It is obvious that this arrangement is feasible only in communities which always have under way a considerable amount of repair and construction work. Philadelphia and Cleveland, Ohio, are examples of cities that use the plan. Philadelphia secures her architectural service at an average charge of 1.3 per cent.[1] Compared with the usual charge of 6 per cent, this appears to be a large saving, but, as will be shown later, this economy may be only apparent.

In Philadelphia, plans are prepared according to standard specifications and layouts of the superintendent of schools and his educational staff. Moreover, before any plans can be placed in execution, they must be approved by the superintendent of schools, who is now aided in giving this supervision by an assistant superintendent. Such approval on the part of the educational staff is essential, if provision for the educational interests is not to be neglected; for the planning of a school building is primarily an educational function.

5. *The associated architects.* Under this plan (used now, so far as is known, only by Niagara Falls, New York) the board of education enters into an agreement with the local architects, who organize as an association. Such association then selects the architect who is to be responsible for planning the project under the general supervision of the association. Buffalo, New York, one of the few cities that has tried the plan, recently gave it up because of a feeling that responsibility could not be easily placed in a group or in an association.

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[1] W. G. Bruce, "Securing School Architectural Service," *American School Board Journal* (January, 1924), Vol. LXVIII, p. 84.

Table III, from Hull's study,[1] shows the number of cities of various populations that use each of the five aforementioned plans.

TABLE III. DISTRIBUTION OF TYPES OF ARCHITECTURAL ORGANIZATION BY POPULATION OF CITIES

Population	Type					Total Number of Cities
	I	II	III	IV	V	
More than 1,000,000 . . .	0	0	0	3	0	3
500,000 to 1,000,000	4	1	1	3	1	10
100,000 to 500,000	23	4	1	7	0	35
30,000 to 100,000	47	0	5	2	1	55
Total Cities	74	5	7	15	2	103

Selection of the School Architect

Everywhere the competition for school-architectural business is keen. Let a board of education announce, or even hint, that it is considering the erection of a new building and it will have a host of applicants for the work. Which of these competitors shall be selected becomes then a perplexing question, for architects, like other competitors, are frequently an insistent and persistent group. Each architect thinks, or at least he argues, that he has the best qualifications for the work; some argue further that because of local residence or local interest they are more *entitled* to the work than anyone else. Generally the unfortunate thing about the whole procedure is that members of boards of education, whose job it is to contract for architectural service, are at a disadvantage in architectural information. They are frequently uninformed on what constitutes good architectural service and are unable accurately to judge the comparative qualifications of the many competitors. Therefore the architect who talks the loudest and the longest, irrespective of his qualifications, often secures the contract. The following practices are in vogue in the selecting of school architects, particularly where project architects are employed.

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[1] Article in *American School Board Journal*, Vol. LXXIII, p. 173.

Architectural competitions. A few boards of education organize competitions to secure their architectural service; that is, they announce that preliminary drawings and sketches may be submitted according to the conditions of the contest which has been arranged. If the competitive plan of hiring the architect is used, the conditions of the competition should be well provided for. The American Institute of Architects has published a circular which gives the organization of an architectural competition and the bases upon which members of the American Institute of Architects should engage in such competitions.[1] School officials who contemplate using the competitive plan can do no better than to secure this circular and to follow it in the main.

The Committee on Schoolhouse Planning and Construction of the National Education Association, which submitted its report in 1925, says that if a competition is held the following suggestions should be followed:[2]

> The competition should be limited absolutely to persons who have demonstrated their ability to plan and construct satisfactory schools. Moreover, a wide experience in school architecture is essential, as every school involves new problems. The young practitioner should secure his experience in the employ of a firm doing school work, and never where his mistakes must be at the expense of the public and its youth. The winning of a competition, if not limited to competent persons, is no guarantee that the person

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[1] *Architectural Competitions, a Circular of Advice and Information.* The American Institute of Architects, The Octagon House, Washington, D. C.

[2] Report of the Committee on Schoolhouse Planning and Construction of the National Education Association, pp. 11–12.

> is competent, since the competition plans do not include details of planning and do not reveal a knowledge of construction or executive ability.
>
> It should be noted that successful experience in planning elementary schools is not of itself a sufficient preparation for planning high schools, since the latter involve different and more intricate problems.
>
> Each competitor should be given a definite schedule of rooms desired. Otherwise the competition is likely to turn on the ability of the competitors to guess what is wanted rather than to plan efficiently.
>
> The committee making the award should have the advice of one or more persons who are experts in studying and judging plans for public schools on the basis of their adaptation to educational needs. Frequently the committee has less actual knowledge of requirements than the competing architects, and consequently the best plan is not likely to be selected.
>
> Each competitor should receive an honorarium in recognition of his services.

The committee recommends that the school architect be employed through a competition only when other methods fail. On this point the report of the committee says:[1]

> Even after the competition is decided, a re-study of the plans is generally necessary. The winning plans frequently have to be revised so extensively as to be hardly recognizable. Better results would be secured if the committee and the architect were able to confer at every step, and this is not possible under the competition plan. Hence recourse to a competition should be taken only as a last resort when the committee is unable to decide between two or three competitors whose qualifications seem equally good.

No competitions. Some boards of education decide on an architect and employ him without further ado. For example, if an architect has built up an enviable reputation, and if the board of education has confidence in him and his work, he is given the contract. In a sense, competition does enter into this plan, for although they may not realize it, the reputation and ability of the various architects are competing with the qualifications of other architects. In this plan of course a competition is not announced or organized on a formal basis as is done under the first plan.

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[1] Report of the Committee on Schoolhouse Planning and Construction of the National Education Association, pp. 12–13.

Local versus outside architects. We have already affirmed that the designing of a school building is a function which requires specialized knowledge on the part of the architect. An architect may be an expert in designing churches, but only a tyro in the planning of school buildings; he may be a specialist in the designing of theaters, but know little about school buildings; he may have acquired an enviable reputation in the planning of hotels, banks, apartment houses, office buildings, bridges, factories, or what not, but know little or nothing of school buildings; he may even be a specialist in designing elementary-school buildings, but know little about high-school buildings. To infer that because an architect is able to design some other building he is therefore competent to plan a school building is as fallacious as to assume that an eye and ear specialist is the best consultant on a disease of the heart. Ours is an age of specialization, and the profession of school architecture is no exception to the rule.

These facts, however, are not always understood when the problem of selecting the school architect arises. Too many school authorities conclude that an architect should be able to plan an up-to-date school building, since he has been successful in designing other buildings. Such argument is applied too often to the *local* architect. For the local architect it is argued further that he is a taxpayer, that he has children in the local schools. Under the stress of such arguments too many school authorities forget that it is better to secure the *right* architect, although he may be an outsider. They forget, if they ever knew it, that school architecture is a profession; they forget that it is only good business to secure the best person for this or any other work, irrespective of his residence. To employ any other than the best qualified in public business is a form of malfeasance; it is a betrayal of public trust. A "protective tariff" should no more be levied on architectural brains than upon teaching brains. When qualifications are equal, school officials are doubtless justified in giving the school work to the local resident, but they are never justified in favoring local talent to the harm of, or at the expense of, the public. A school board that is circumspect will ignore the clamor for the hiring of "home talent," if such talent has nothing more than a residence qualification to commend it.

Cost of School Architectural Service

Competency and other things being equal, it should be the aim of the school authorities to secure architectural service as cheaply as possible. When we investigate what various communities are paying for their school architectural service we find that the charges vary widely. William George Bruce,[1] in an inquiry relative to cities of one hundred thousand population and over, found that the cost of school architectural service averages between 5 and 6 per cent of the total construction cost. These per cents include the cost of providing plans and specifications, engineering service, and supervision of construction.

The usual practice is to figure the supervision of construction at about half the rate of designing the plans and specifications. The American Institute of Architects recommends that 6 per cent be the basic charge for architectural services.

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[1] "Securing School Architectural Service," *American School Board Journal* (January, 1924), Vol. LXVIII, p. 87.

The Institute specifically says, however, that this charge is not mandatory; on the other hand, it makes it clear that *the size of the fee should be determined by the services rendered.* If the services rendered justify a charge of less than 6 per cent, well and good; if the services demand a larger charge, also well and good.

The data which Mr. Bruce reports in his study make it clear that the cities which hire their architects on a salary basis are securing architectural service at a cheaper rate than the cities which secure their architects on a percentage or a cost-plus-fee basis. For example, Akron, Ohio, estimates its architectural cost at 3 per cent; Cambridge, Massachusetts, at 5 per cent; Cincinnati, Ohio, at 3 per cent; Cleveland, Ohio, at 3 per cent; East St. Louis, Illinois, at 3 per cent; Erie, Pennsylvania, at 2 per cent; New Orleans, at 2.25 per cent; and Philadelphia, at 1.3 per cent. Whether these cities have figured a charge for office rent and other overhead in determining these per cents we do not know; obviously, though, such charges should be included.

In the larger cities it appears that those which hire their architects on a salary basis are securing their architectural service at a lower rate than those which hire on a percentage or a cost-plus-fee basis. It is possible, however, that this saving is only apparent. It is possible that the service rendered by the salaried architects is not so competent as that given by the project, or private, architect. Unfortunately there is no evidence on the public versus the private architect question that permits us to say which services are better. We must conclude, however, that it all depends on the qualifications of the architect. Who is there to say that St. Louis, for example, does not have an unusually splendid group of school buildings — buildings that have been designed by architects working on a salary basis? On the other hand, we could mention communities in which salaried architects have been responsible for poorly designed buildings — buildings which are notorious for their vulgar sameness and general meanness.

Supervision and Inspection of Construction

After the plans for the building have been worked out and the contract for the construction of the building has been let, supervision and inspection of construction must be provided for to see that the building is erected according to specifications. It will be necessary to see that the materials used are those which the specifications stipulate, and to see that the construction follows the specifications in detail, unless the consent of the architect and the board of education to use substitutes is secured.

Three practices of supervising and inspecting the construction of school buildings exist. In most instances the architect looks after this function. In this practice either the architect or one of his agents is on the job almost constantly to see that the work is done according to specifications. In the second case the board of education is responsible for this work. This practice, however, is not so common as the one first mentioned. Under the third practice the board of education and the architect both have some responsibility in supervising and inspecting the construction. This practice should become more common, for both the architect and the board of education have an interest in whether or not the work is being done according to plans and specifications. The architect has an interest largely because he is concerned over his professional standing and reputation; the completed building will stand as a silent testimonial, good or bad, to his work. The board of education has an interest largely because as representatives of the citizens they pay the bill; they cannot risk being "cheated."

The Architect's Contract

A good form of contract between the owner and the architect, particularly in cases where the architect is to work on a job basis and not on an annual salary or a part-time basis, should be provided. Such contract is necessary both to the architect and his employers; the more definite the contract, the better it is for all concerned. The standard form of contract between the owner and the architect is that designed by the American Institute of Architects. It is recommended that this form of contract be followed, at least in the main. It may be modified, of course, to meet the needs of the local situation. It has the particular merit of being specific. Some of the main items which illustrate its nature are the architect's service; the architect's fee; reimbursement; separate contracts; extra services in special cases; payments; the owner's decision; survey borings, and tests; supervision of the work; preliminary estimates; definition of the cost of the work; ownership of documents; successors and assignment; arbitration.

The American Institute of Architects. Those who are responsible for constructing school buildings can find nothing of greater consequence on the best methods of securing architectural services than the publications of the American Institute of Architects. It is perhaps not amiss to say that this is the national organization of architects, an organization which is analogous to such organizations as the National Education Association, the American Bar Association, and the American Medical Association.

The more pertinent publications of the American Institute of Architects are listed here for reference. With the exception of the first four the documents are either free or may be had at a very low price. In familiarizing oneself with architectural business one can make no better investment than to expend a few cents for the more pertinent ones of these publications.[1]

The Journal of the American Institute of Architects
The Handbook of Architectural Practice
The Standard Contract Documents
  Agreement and General Conditions in Cover
  General Conditions without Agreement
  Agreement without General Conditions
  Bond of Suretyship
  Form of Subcontract
  Letters of Acceptance of Subcontractor's Proposal
  Cover (heavy paper, with valuable notes)
  Complete Set in Cover
The Standard Form of Agreement between Owner and Architect (Percentage Basis)
A Form of Agreement between Owner and Architect (Fee-Plus-Cost Basis)
A Circular of Information on the Fee-Plus-Cost System of Charges (explanatory of owner-architect agreement on Fee-Plus-Cost Basis)
A Form of Agreement between Owner and Contractor (Cost-Plus-Fee Basis)
Circular of Information Relative to Cost-Plus-Fee System of Contracting (explanatory of contractor-owner agreement on Cost-Plus-Fee Basis)
A Circular of Advice and Information Relative to the Conduct of Architectural Competitions
Standard Form of Competition Program
Ethical Documents of the Institute
Circular on the Functions of the Architect
A Circular of Advice Relative to Principles of Professional Practice, the Canons of Ethics
Schedule of Proper Minimum Charges
Standard Symbols for Wiring Plans
List of Institute Documents

SELECTED REFERENCES

ALLEN, H. P. "Inspection of Schoolhouse Construction," *American School Board Journal* (January, 1926), Vol. LXXII, pp. 65–67.

Cites examples of losses through failure to inspect; suggests matters to be kept in mind by inspectors.

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[1] Communications and remittances should be sent to the Executive Secretary, The Octagon House, Washington, D.C.

BRUCE, W. G. "Securing School Architectural Service," *American School Board Journal* (January, 1924), Vol. LXVIII, pp. 80, 82, 84, 87, 88.

Shows the practice of cities of over 100,000 population regarding whether they use the competitive-plan system or the direct-employment system of securing their architects; also shows cost of architectural service in these cities.

COOPER, F. I. "Economies gained in Standardizing Schoolhouse Plans," *American School Board Journal* (August, 1919), Vol. LIX, pp. 34–36, 89–90.

A list of economies that accrue from standardization of plans.

DONOVAN, J. J., and Others. *School Architecture: Principles and Practices.* The Macmillan Company, 1921. 724 pp.

Many illustrations of buildings and equipment are given; numerous floor plans are shown; particularly helpful in planning of buildings.

DRESSLAR, F. B. "Two of the Difficulties in the Way of Getting Good School Buildings," *American School Board Journal* (January, 1927), Vol. LXXIV, pp. 39–40.

Discusses lack of information on part of school-board members regarding matters pertaining to planning of school buildings, and also the "high pressure" tactics of some unscrupulous architects.

FINNEY, J. M. "School Architecture from the Æsthetic Point of View," *American School Board Journal* (January, 1927), Vol. LXXIV, pp. 79–80.

Describes types of architecture used in American school buildings; bibliography.

HULL, O. R. "The Administration of School-Building Programs," *American School Board Journal* (June, 1926), Vol. LXXII, pp. 61–62.

A general treatment of school-building-program organization and the question of costs of construction; discusses particularly the Atlanta, the Denver, and the Philadelphia plans for securing architectural service.

HULL, O. R. "The Administration of School-Building Programs," *American School Board Journal* (July, 1926), Vol. LXXIII, pp. 55–56, 170, 173.

Describes types of organization established for the administration of school-building programs; distinguishes and describes five plans of providing for school architectural service.

KINGSLEY, C. D. "Dependence of School Architecture upon Educational Engineering," *American School Board Journal* (January, 1925), Vol. LXX, pp. 43–44.

Discusses three steps that should be taken before the school architect is ready to draw the preliminary plans.

LLEWELLYN, J. C. "How to Choose an Architect," *American School Board Journal* (January, 1926), Vol. LXXII, pp. 41–42.

Discusses the service of architects under five main principles.

MILLIGAN, R. M. "The School Board, the Architect, and the Builder," *American School Board Journal* (September, 1920), Vol. LXI, pp. 37–40, 95, 97.

Discusses the relations that should exist between the school board, the architect, and the builder.

STRAYER, G. D., and ENGELHARDT, N. L. *School-Building Problems*, pp. 150–212. Teachers College, Columbia University, 1927.

Discusses the selection of the architect, and the architect's plans and specifications.

TWEED, C. E. "The Consulting Mechanical-Equipment Engineer," *American School Board Journal* (November, 1925), Vol. LXXI, pp. 45–48; (December, 1925), pp. 49–50, 129.

Recommends the employment of a consulting mechanical engineer when new buildings are being designed; suggests standards to keep in mind in the employment of such engineers.

"Let the Architect Beware" (by a school architect), *American School Board Journal* (January, 1925), Vol. LXX, pp. 49–50; (February, 1925), Vol. LXX, pp. 51–52; (March, 1925), Vol. LXX, pp. 55–56, 135, 136.

Describes the trials and tribulations of one school-building architect in securing a contract and in executing it.

Report of the Committee on Schoolhouse Planning and Construction, National Education Association, 1925.

Pages 10 to 13 discuss the selection of the school architect.

"The Schoolhouse Architect — Outsider or Local Talent — Which?" in *American School Board Journal* (January, 1925), Vol. LXX, pp. 63, 128.

Recommends the employing of the most competent architect irrespective of his residence.

CHAPTER IX

SELECTING AND PURCHASING SCHOOL SITES

Need for Proper Selection

At some time in the life of every school district those in charge of the schools are called upon to select a school site, and in a rapidly growing community they are quite frequently obliged to perform this duty. When the need is imminent considerable thought and attention is required, for unless a good site is selected, the efficiency of the educational program will suffer. Moreover, unless the selection is made in a businesslike manner, extravagance, development of community factions, or of some other objectionable feature may result.

In most communities there are several possible choices for a school site, and arguments can usually be advanced in favor of each of these. The persons who are responsible for making the selection must have certain criteria which they will follow if the best site is to be selected and if they are not to be accused of partiality, high-handedness, malfeasance (in some cases), or a lack of business acumen. Some of the bitterest school fights — fights which have left their scars on the community for several years — have grown out of the selection of a school site. There will always be many parents and patrons to insist that the school building be located in close proximity to their children; this is but human. Thus it often happens that the "East End" becomes arrayed against the "West End," or the "North Side" against the "South Side." In addition to the pleas of interested parents and patrons, the advice of real-estate agents and owners of possible sites must be respectfully heard, and they are frequently persistent and insistent. In the course of such persuasions the school administrative officers must stand foursquare and, as always, make their decisions only with the interests of all the children and the whole community at heart.

When to Select

The site should be selected and purchased, or an option taken on it, some five or ten years in advance of the time when it will probably be needed; this advice is particularly pertinent to city school systems; obviously, early selection is not so urgent in rural communities. An early selection is recommended, because, in the first place, such procedure will assure the best available site. If the selection is delayed, a compromise may be necessary between what is ideal or desirable and what is obtainable. For example, a delay may require the selection of a site which is not centrally located, which is insufficient in size, or which does not measure up to standard in some other regard. In the second place, the site should be early selected and purchased or an option taken on it ahead of time, because of the cheaper price at which it may usually be acquired; property values tend to rise rapidly in a growing neighborhood, and where land has to be acquired upon which buildings have been erected, considerable expense is involved in moving and razing. In the third place, early selection will enable the board of education to protest the establishment in a school district of any business or building detrimental to a good school environment.

Thus far it has been recommended that the site be acquired as early as possible, because the land can usually be acquired much more cheaply, and because a better site can be assured. Furthermore, it should be kept in mind that, if the board of education should not care to use any acquired land for school purposes, it can readily be sold, and usually at a figure appreciably above the purchase price, provided the purchase price has been reasonable. Not only will the school site be likely to increase appreciably in value, but no taxes have to be paid on property publicly owned. No land should be bought, however, unless the board is reasonably certain that it will be used for school purposes; none except necessary funds should be taken from the public.

Fortunately, techniques are available to aid school officials to determine pretty accurately the best locations for school buildings, say, five, ten, or fifteen years from the present. These procedures will be outlined later.

Who shall Select?

As in all other phases of administering the schools, it matters little *who* performs the function of selecting a site so long as it is performed in an efficient manner. In most instances of site selection, the administrative staff and the board of education should work together; in no instance, since the function is somewhat technical, should the board of education work alone. It will sometimes be found advisable to bring in outside authorities to aid in the selecting. For example, if there are several sites under consideration, and if community factions have resulted over the consideration of the question, these outside experts might give their unbiased judgment; in other words, these outside persons would be brought in to act as referees. These referees might well be such persons as college or university professors of school administration, members of the state department of public instruction, or well-informed superintendents of schools.

Criteria for Selecting

Several factors should be kept in mind in selecting a school site. Although there is no truly objective basis for determining with mathematical precision whether one site is better than another, a regard for these factors will undoubtedly help in forming a more accurate judgment. Of course it will seldom be possible to secure a site which meets ideal standards in all of the criteria. The site selected, for example, might not have the best soil or ideal drainage, but the remaining criteria would be expected to outweigh the other possible choices. Again, a certain site might be the best located, both as to accessibility and environment, but so lacking in other qualities that it could not be chosen.

It should be remembered that the type of school, whether city or rural, elementary or high, academic or vocational, will largely determine the location, kind, and size of site to be selected. In general, the following criteria should be kept in mind in selecting a site:

1. *Accessibility.* In the first place, the site should be a geographical, population, and community center. It should meet the needs of the greatest number of people, both at present and during the next few years. It should be within easy or feasible walking distance of the pupils whom it is designed to serve; at any rate, it should be within feasible walking distance of *most* of the pupils whom it is designed to serve. Generally speaking, elementary-school pupils will be able to walk one half to three fourths of a mile. Junior-high-school and senior-high-school pupils can easily walk one mile and one and one-half miles respectively, and if necessary the distances for such pupils could be increased one-half mile. Of course it will not always be possible to provide ideal distances for all pupils; particularly is this true in the rural districts and sparsely settled regions. Here, as on

other questions of school administration, we cannot state our principles and make our decisions in a dogmatic fashion.

To determine whether or not a prospective site is in a population center, a survey of the population should be made. This may be done by drawing circles of different radii, say of one-half mile, of one mile, or of one and one-half miles and more, with the proposed site as a center of the circle or circles. The pupils living in each block or in each section of the circle or circles may then be located and counted. Not only should the *present* school population be considered, but the *direction* or *trend* of population growth should also be kept in mind. Thus, if the population is growing particularly rapidly in a certain section of the community, a site should be selected, if possible, somewhere in the direction of that growth. The direction of population growth may be ascertained by a study of such data as birth certificates, new residential districts, new factories, or new public utilities and extensions, such as telephones, gas, water, electricity, and sewers. By such surveys the present school population and the probable future population can be determined with a fair degree of accuracy. Figs. 16 and 17 are maps which illustrate better than words how a population survey can be made.[1]

Fig. 16 locates the present enrollment in the elementary schools, and Fig. 17 does the same for both the junior and senior high schools. Similar maps should be constructed for junior-high-school pupils, for senior-high-school pupils, for junior-college students, and for colored pupils, — if the community believes in race segregation, — or for other special groups, such as vocational pupils, the blind, the deaf, the crippled, and the tuberculous. Moreover, maps might well be constructed showing the trend of population in the last two, three, four, or five years.

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[1] *A Building Program for Marietta, Ohio*, pp. 39, 47.

In the second place, in determining the accessibility of a site the transportation facilities for people should be kept in mind. Although in an ideal situation, as has been said, all the children should be able to walk to school morning and evening and to and from lunch as well, this arrangement is not always possible. Nearness, then, to transportation facilities, such as railroads, street cars, interurbans, and public highways, should be considered. In the rural districts the condition and the location of the roads leading to the site should be kept in mind. However, because of the traffic hazard and such undesirable factors as noise and dust, a site should not be too near these transportation facilities.

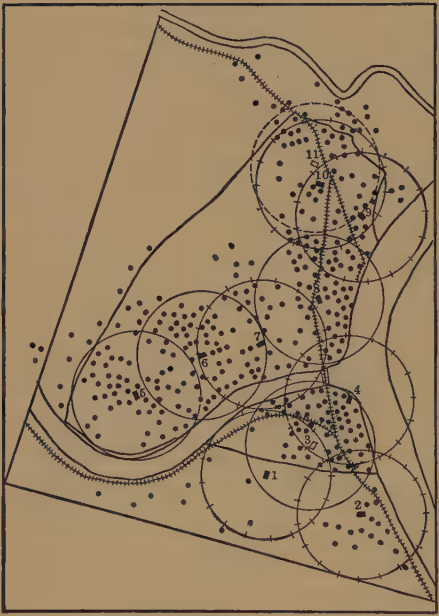


FIG. 16. The residences of the elementary-school pupils in Marietta, Ohio

Each dot represents five pupils

In the third place, a site should be selected in relation to the location of other schools. For example, in a rural district, from the standpoints of pedagogical efficiency and financial economy, a high school should not, as is all too often the case, be located too near another high school. Ideally, a site would be chosen that provided for a building which could house a sufficiently large number of pupils to maintain an up-to-date educational program at a reasonable cost per pupil. Except in unusual instances high schools, if they are to be conducted on a reasonable per pupil cost and an efficient educational plane, should have not less than one hundred students; a much larger number would, of course, be much more desirable, and can frequently be secured.

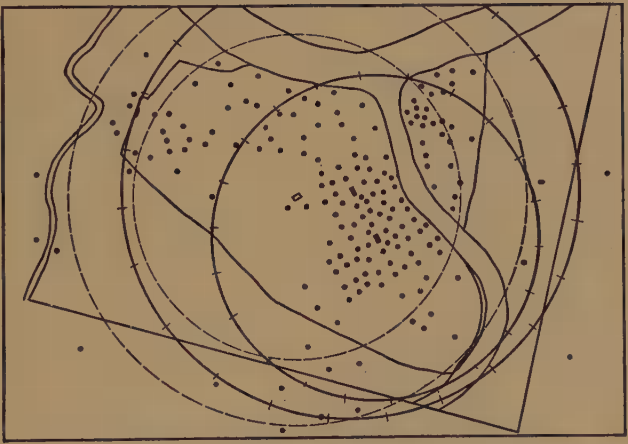


FIG. 17. The residences of the high-school pupils in Marietta, Ohio

Each dot represents five pupils

In the fourth place, since a school building is in most instances a community center, the site should be selected with the convenience and the general community interest of the people in mind. For example, in the rural districts, other things being equal, the school building should be in or near a town or a village — where the people of the community have their church, their lodge, their marketing, and their other community interests.

In the fifth place, the *elevation* of the site should be considered. For example, a site which is on a hill or an eminence would probably be beautiful, but the incline difficult to ascend. Moreover, if the site were on a hill playground facilities would probably be difficult to provide, and because of winds the building might be hard to heat. On the other hand, a school should not be located in a low, damp place.

2. *Environment.* If possible, the school should be situated among pleasing surroundings, and in addition it should be free from any obnoxious or disturbing influence. It should be free from any moral or physical hazards, unsanitary conditions, and other undesirable influences. Nearness to a well-maintained and beautiful park, a grove, or a brook, other things being equal, would be a desirable location for a school site. On the other hand, nearness to railroads, to most factories, to rapidly running, deep streams and other dangerous bodies of water, to highways with much traffic or much dust, to polluted streams or other bad odors, to stockyards, to stone quarries, to stable barns, to gaudy billboards, to roadhouses, to questionable dwelling places, to loafing places, to cliffs, and to forests that frequently have ravaging fires, should be avoided.

3. *Soil.* Under ideal conditions the site should have a soil which is at once permeable and quick-drying. A sandy-loam soil meets these standards well, whereas a slow-drying loam or an impervious clay or gravel is not so desirable. Moreover, the soil should be free from decaying organic matter and also free from baneful artificial construction; such types of soil are frequently unsanitary and unhealthful. Finally, the soil should permit gardening, a good lawn, and landscaping. The sandy-loam soil would be excellent for such purposes. Too many school sites are merely barren plots of ground; entirely too many of them have not a blade of grass, a tree, or a semblance of vegetation.

4. *Size, shape, and topography.* Of course the size of the site will be determined by such things as the number of

pupils to be accommodated in the school, the type of school, the educational program to be maintained, and the amount of land which can be feasibly procured. Generally speaking, however, the grounds should be sufficiently large to afford ample space for a proper placing of the building, for playgrounds, for landscaping, for experimental gardening, and for the growth of the school. The space provided for playgrounds should be large enough to permit the pupils to engage in the usual games which pupils of the ages to be accommodated in the school most enjoy. For example, in the upper grades and in the high school, such games as football, baseball, track, and tennis are popular, and provision should be made for some or for all of them. Although the question can be answered only by opinion, — and opinion is never infallible, — most authorities agree that the amount of playground space should not be less than fifty square feet per pupil. One hundred square feet or more per pupil would be much more desirable, of course. In the rural districts, where land is much more available and cheaper and where agriculture is generally taught, the space provided for each pupil should be much larger. In fact, the laws of many states now require as much as ten acres for a consolidated school and at least one acre for even a one-room school.

Dimensions, for example, of two by three, three by four, three by five, or of approximately one of these are desirable. Such shapes usually permit a better placing of the building, better landscaping, and more ample playground and gardening space. A site having a so-called "shoestring" shape, or one which approximates that, should be avoided.

Furthermore, the topography of the site should be such as to make it possible readily to utilize all or nearly all the site. A hilly site or one with ravines, of course, could not be used without much expense for grading.

5. *Miscellaneous.* The following are miscellaneous factors to be considered in selecting a school site:

a. Cost. Other things being equal, the cheapest site should, of course, be selected. It should be kept in mind, however, that a cheap site may in the end be an expensive site. In selecting a site both the original cost and the cost of putting it in a usable condition must be considered.

b. Drainage. The possibility of drainage and provisions for the disposal of sewage is another factor to be considered. A site that would drain the surface water toward the building should not be chosen. Moreover, a site on which the rain would erode the soil should be avoided.

c. Water supply. The water supply is an important consideration in selecting a site for a rural-school building. Both the quality and the quantity of water should be inspected. A preliminary check on the quality and the quantity of water may be readily made by an examination of the water of neighboring wells.

d. Sunlight. A site should be selected which receives sunlight during the entire day. Plenty of natural light is necessary in order that unsanitary conditions shall not prevail, and the sun's rays are the most effective natural germicide. Some common hindrances to the rays of the sun are mountains or hills, cliffs, trees, and buildings.

A Score Card for Selecting School Sites

A score card may well be used to help those who choose school sites in procuring a closer approach to objectivity in their selection and in order that the criteria that should be used may not be forgotten. The sample score card[1] presented in Fig. 18 may be modified to meet the needs of the type of school for which a site is about to be chosen.

---

[1] This particular score card was designed by County Superintendent L. W. Reese, of Chardon, Ohio.

SCHOOL DISTRICT ________________ DATE ____________

NAMES OR LOCATIONS OF TENTATIVE SITES: A ________________

B ____________________ C ____________________

D ____________________ E ____________________

		A	B	C	D	E
I. ACCESSIBILITY						
1. Geographical center	65					
2. Population center	85					
3. Trend of population	85					
4. Transportation facilities	65					
	300					
II. SURROUNDINGS						
1. Free from unpleasant odors	40					
2. Free from disturbing influences	50					
3. Free from immoral influences	60					
4. Free from hazards	60					
5. Sanitary and healthful	80					
6. Attractive	40					
	330					
III. SOIL						
1. Permeable and dry	45					
2. Free from decaying organic matter	30					
3. Free from artificial construction	25					
	100					
IV. GENERAL						
1. Satisfaction of patrons	35					
2. Cost	35					
3. Contour for buildings and grounds	40					
4. Sunlight	20					
5. Size	80					
6. Shape or form	40					
7. Æsthetics	20					
	270					
TOTAL	1000					

REMARKS ____

____

____

____

Scorer

FIG. 18. Sample score card for selecting a school site

How to Purchase

In purchasing a school site one of the following three methods may be used:

1. Purchasing it direct from the owner or owners, without the mediation of a third party.

2. Purchasing it through the mediation of a third party. In this method the agent or third party may be instructed (1) to pay a net price, the seller to pay the fee or commission, or (2) to purchase at the lowest possible price, the commission or fee for such service to be paid by the purchaser.

3. Exercising the right of eminent domain, — that is, the use of condemnation proceedings. The use of such proceedings to acquire school sites is permitted by law in all states.

In the city of Denver, Colorado, which has recently engaged in an extensive school-building program and school-site-acquiring activity, the following procedure, as outlined by C. M. Schenck, Director and Treasurer of the Public Schools of Denver, has been successfully used:[1]

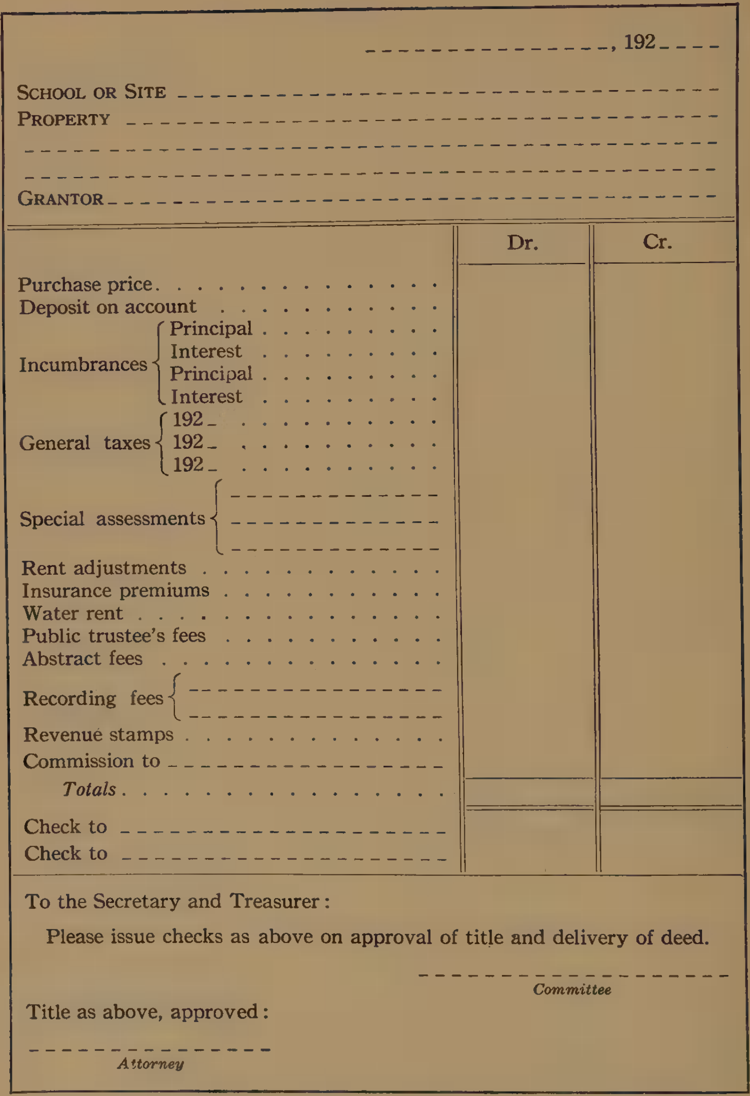
> In each case when a lot, block, or plot had been decided upon as the one best to serve the desired purpose, it was inspected, and that particular property as well as others in its immediate vicinity gone over again and again by the members of the Board individually and collectively, to make sure that in fact it was the best available. That decided, a plat was made showing the vacant lots and the lots on which there were improvements, and an estimate of the value of each. This done, the Board appointed a committee of one or more of its members either to investigate further and report or within a named maximum price to negotiate for its purchase. Such negotiation was usually conducted by a confidential agent and without its being known by the owner of the property that

---

[1] "Selection and Purchase of Public-School Building Sites," address at the Fifteenth Annual Meeting of the National Association of Public-School Business Officials, Toronto, Canada, May 18–21, 1926.

> the proposed purchaser was the School District. When the negotiations were completed a blank, of which a copy herewith is attached [see Fig. 19], was filled in, signed by the committee and the attorney, and upon the delivery of a Warranty Deed the deal was closed.
>
> In case some of the lots in a block were vacant and some improved, the vacant lots were bought first and those with improvements on them acquired from time to time as opportunity offered. If, when the block was partially cleaned up, the owners of the remaining lots were stalling for higher prices, condemnation proceedings were instituted.
>
> A majority of our sites have been bought in this manner. Condemnation was resorted to only when it was impossible to reach an agreement on price. It is our belief that direct purchase with careful appraisal has been entirely satisfactory in meeting the situation in Denver. It may be that in larger cities, where property values are higher and the acquisition of sites more difficult, the exercise of the Right of Eminent Domain would be preferable. Denver has at the present time a prospective program for the acquisition of some twenty-five new sites for all types of schools and for the extension of eighteen sites at old schools.

Local conditions should, of course, determine the method of purchase to be used. In some instances, the board of education can buy at a lower figure than could a private individual; this happens because many owners are sufficiently public-spirited to make a concession to a board of education. On the contrary, some owners believe in, and practice, "the public be damned" policy; they get everything possible. It is well in such a case for the school board to purchase the site through an agent and not publicly announce its desire for that particular location. In other instances, it would be more feasible to exercise the right of eminent domain, which, in addition to its economy, stops the cry of graft — a cry not infrequently raised, although not always justified, when sites for public buildings are selected and purchased.



__________________, 192____

SCHOOL OR SITE __________________________

PROPERTY __________________________

____

____

GRANTOR __________________________

		Dr.	Cr.
Purchase price			
Deposit on account			
Incumbrances	Principal		
	Interest		
	Principal		
	Interest		
General taxes	192__		
	192__		
	192__		
Special assessments	______________		
	______________		
	______________		
Rent adjustments			
Insurance premiums			
Water rent			
Public trustee's fees			
Abstract fees			
Recording fees	______________		
	______________		
Revenue stamps			
Commission to ______________			
Totals			
Check to ______________			
Check to ______________			

To the Secretary and Treasurer:

Please issue checks as above on approval of title and delivery of deed.

____
Committee

Title as above, approved:

____
Attorney

FIG. 19. Form used by the Denver schools in purchasing real estate

When the revenue is insufficient to purchase at one time all the proposed sites, the most urgent needs should be taken care of first. These will usually be in regions where the growth in population is most pronounced. After the more urgent needs have been cared for, as soon as the finances will permit the other sites should be acquired. Of course a bond issue could be passed to provide the funds, and, if haste is necessary, this will often be advisable.

SELECTED REFERENCES

BENNETT, H. E. *School Efficiency.* Ginn and Company, 1917. 374 pp.

Chapter II discusses school grounds.

BURGESS, MAY AYRES. *Healthful Schools: How to Build, Equip, and Maintain Them.* Houghton Mifflin Company, 1918. 292 pp.

Chapter I discusses the school site.

BUTTERWORTH, J. E. *School-Building Score Card for One-Teacher School Buildings.* World Book Company, 1921. 4 pp.

A 1000-point score card for school buildings and grounds; 170 points are devoted to the site.

DRESSLAR, F. B. "Some Problems to be considered in Selection of Sites for School Buildings," Addresses and Proceedings of the National Education Association (1915), pp. 951–955.

Discusses criteria to be kept in mind in selecting school sites.

ENGELHARDT, FRED. "Forecasting School Population," *American School Board Journal* (April, 1925), Vol. LXX, pp. 48–50, 129–130, 133.

Suggests a practical technique for the forecasting of school population.

ENGELHARDT, N. L. *A School-Building Program for Cities.* Teachers College, Columbia University, 1918. 130 pp.

Part I discusses how to study population trends.

GREGG, J. W. "Landscape Development of School Grounds," *American City* (January, 1916), Vol. XIV, pp. 36–38.

A general discussion of site selection and beautification; emphasizes preparing a lawn, playgrounds, and walks.

GREGORY, V. J. "The Purchase of School Sites," *American School Board Journal* (September, 1925), Vol. LXXI, pp. 44, 135–136.

Describes the policy of Minneapolis in acquiring school sites.

Reese, L. W. "A Score Card for Selecting the Site for a Consolidated School," *American School Board Journal* (January, 1925), Vol. LXX, pp. 79–80, 130.

The score card and its use are described.

Reinoehl, C. M. "Coöperative School Building Survey in a Small City," *American School Board Journal* (January, 1926), Vol. LXXII, pp. 45–46.

Suggests a technique for making a school-population survey.

Many school-building surveys have been made within the last few years and most of these devote some space to the selection of the school site. Most of these have been published and may be procured from the boards of education of the cities. Some of the cities that have published school-building surveys are the following: Atlanta, Georgia; Baltimore, Maryland; Cedar Rapids, Iowa; Denver, Colorado; Elyria, Ohio; Grand Rapids, Michigan; Milwaukee, Wisconsin; Napa, California; Ogden, Utah; Portland, Oregon; Rockford, Illinois; Stamford, Connecticut; St. Louis, Missouri; St. Paul, Minnesota; Winona, Minnesota.

Strayer, G. D., and Engelhardt, N. L. *School-Building Problems*, pp. 1–27. Teachers College, Columbia University, 1927.

Gives suggestions on the making of population studies.

Strayer, G. D., and Engelhardt, N. L. Score Card for Village and Rural School Buildings of Four Teachers and Less, *Teachers College Bulletin No. 9*, Series 11. Teachers College, Columbia University, 1920.

A 1000-point score card which devotes 160 points to the school site.

Strayer, G. D., and Engelhardt, N. L. *Standards for High-School Buildings, with Score Card*. Teachers College, Columbia University, 1924.

A 1000-point score card for school buildings and grounds; 100 points are devoted to the site.

Tripp, B. A. "Foresight in School Sites," *American School Board Journal* (January, 1924), Vol. LXVIII, pp. 45–48.

Discusses criteria to use in selecting, and the necessity for early selection.

"Selection and Purchase of School Sites," *American School Board Journal* (December, 1925), Vol. LXXI, p. 66.

An editorial on difficulties faced by boards of education in selecting school sites.

CHAPTER X

FINANCING CAPITAL OUTLAYS FOR SCHOOLS

A Capital Outlay Defined

In the terminology of school finance and business administration, a *capital outlay* is an expenditure for anything which increases the permanent possessions of the school. The most common expenditures for capital outlays are those for building sites, new buildings, new equipment, and rehabilitation and alteration of old buildings and equipment. In the United States approximately one fifth of the school funds is now spent for this function, the expenditure ranking next to that for instruction in amount.

Methods of Financing Capital Outlays

There are two methods of financing capital outlays. These are *paying as you go* and *bonding*.

Two plans of paying as you go are in use. In the first of these payment for a permanent improvement is made by levying an annual tax sufficiently large to pay for the improvement in one year, or if such a high tax is not feasible, a tax large enough to pay for it in two or three years is levied. In the second of the pay-as-you-go plans the school system puts into a sinking fund each year a certain amount of money, so that when it needs a permanent improvement all or most of the money for the improvement will be available.

Most school districts, however, pay for their permanent improvements by bonding. When a district bonds it simply borrows money. Someone lends it money for a given period of time, and in return the district gives its written promise — that is, its bond — to pay both the principal and interest at a stipulated rate.

Whether a community should pay as it goes for its school buildings, sites, and equipment or should sell bonds in order to finance such improvements depends upon several factors, such as the wealth of the community, other school needs, and the cost of the needed improvements. Most financial authorities are agreed that the community should pay as it goes for permanent improvements, if it can arrange its finances to do so. This policy should be followed in order that interest charges may be avoided. This recommendation is made despite the fact that there is some merit in the contrary argument that taking the money from the people at one time prevents its being used in private business. If it pays a moderately high interest rate and there is a sufficiently long term, a community pays as much for interest on its bonds as it pays for principal; a little calculation will show the truth of this statement.

The same principles that govern private business should also govern public business. One of these principles which is generally accepted in private affairs is that a person should not go in debt unless it is necessary, and that if it is necessary, he should arrange to get out as soon as possible. This principle, however, has been much violated during recent years. The violation is evident from a study of the trend of bonded indebtedness in almost any state or local governmental unit. The figures show, in brief, that public indebtedness has increased much more rapidly than population and wealth. Sufficiently high tax limits are needed to permit boards of education to finance capital outlays on a pay-as-you-go basis. That it is possible to follow such a basis is proved by the fact that it *is* followed in many communities.

Of course the pay-as-you-go plan is not always possible. For example, the community with a small tax duplicate cannot use it. In such a community a pay-as-you-go plan for financing the construction of a new school building would require too heavy a tax burden for a small number of years. Moreover, the tax limits in some states make it necessary for boards of education to use for running expenses all the money which the tax limits will permit; in such instances, if permanent improvements are to be made, they must be financed with borrowed money.

In many communities the practice of financing permanent improvements by bonding is running the schools into severe financial straits. In such communities the annual debt charges often amount to more than the running expenses; in fact, some communities are borrowing money to pay for running expenses and for interest charges. A community can no more keep solvent by engaging in such practice than an individual can keep solvent for any length of time by borrowing money for food, clothing, and shelter. A community that follows such practice is headed toward financial disaster; repudiation may be the outcome of too much borrowing.

Getting the Voters to Indorse the Bond Issue

When it has been decided that permanent improvements are advisable and that a bond issue is the most feasible way in which to finance the improvements, it is often necessary, because of the tax laws, to get the people to vote the bond issue; in all states there are maximum tax limits beyond which a board of education cannot go without the people's voting their consent. In such instances school officials must "sell" the bond issue to the people; in other words, the necessity for the bond issue must be proved to the people so that they will vote for it. Although the schools are the most cherished possession of the public and the people will generally vote an additional tax for schools, usually, in these days of rapidly increasing tax rates, they will not vote the additional tax unless they have been fully informed of the merits of the proposal. Therefore a publicity campaign of some sort is usually necessary.

Of course a well-administered school system engages in a continuous *publicity* campaign; that is, it keeps the public constantly informed of the aims and progress of public education. If this continuous publicity has been well looked after, the short and intensive campaign, which should precede the election, will be much easier and much more likely to be successful. The limits of this chapter do not permit an exhaustive discussion of the ways and means of getting the public to indorse the bond issue. Such treatment, however, is hardly necessary, because it is already available in other books on the subject. (Some of the best of these treatises are listed in the Selected References at the close of this chapter.) A few suggestions on how to get the public to vote for the bond issue will have to suffice.

One effective way of placing the merits of a proposed bond issue before the voters is through advertising folders; these folders may be distributed among the voters by the school children. The folders might contain, among other things, a catechism regarding the school-building needs, the financial ability of the community, and similar information. Voters are interested in knowing the urgency of need for the things for which they are asked to vote and to pay for; they also want to know how much the improvements requested will cost them.

Newspaper advertising is another excellent way of placing the desired information before the voters. Still other good forms and methods of advertising are handbills, posters, floats, short speeches in theaters and churches, addresses before the various civic organizations, radio talks, and pictures and graphs presented in the motion-picture theaters.

If the laws permit, it is best to conduct the campaign and to have the election while the schools are in session; obviously a school campaign is more difficult to conduct during the vacation months. Schools are nearer to the hearts of the people when they are in session.

W. S. Deffenbaugh, Chief of the City-Schools Division of the United States Bureau of Education, in a recent circular entitled "Methods of Advertising Proposed School-Bond Issues," lists the following questions, which he gleaned from bond-campaign material that was used by boards of education in various communities of the United States; most of these questions should be asked and answered in the typical community engaging in a bond campaign:

1. How many regular and special classrooms should have been added each year for the past ten years to meet the shortage and care for the annual increase of pupils in the grades and in the high school?

2. How many regular and special classrooms have been added during the last ten years?

3. How many children are on part-time school rations? How many are housed in buildings that should be abandoned? How many are housed in temporary buildings and how many in basement rooms not at all suitable for classrooms?

4. Why has not this city provided enough school buildings?

5. How rapidly is the population of the city increasing?

6. What is the actual net gain in pupils per year in the entire school system? in the elementary school? in the high school?

7. Does the increased enrollment in the high school show that high-school advantages are more widely demanded?

8. What is the relation between the growth of the school population and the increase in high-school enrollment?

9. What is needed to remedy the overcrowded condition in the high school? in the elementary school?

10. Will the proposed buildings provide for growth or will they simply take care of the present enrollment?

11. Cannot additions to the present school buildings be erected at less cost than new buildings?

12. Why should we erect junior-high-school buildings and not elementary nor high-school buildings?

13. Where are the new buildings to be located and why so located?

14. Would it not be possible to pay for the school buildings without a bond issue?

15. How much will the proposed bond issue increase the tax rate of the school district?

16. How does the school tax rate based on assessed and on estimated real wealth compare with that of other cities of the same class?

17. How does the per capita wealth of the city compare with that of other cities?

18. How does the annual expenditure per pupil in average daily attendance compare with that of other cities?

19. How does the per capita bonded indebtedness for school purposes compare with that of other cities?

20. How much real wealth is back of each dollar expended annually for school purposes? How does this compare with the wealth back of each dollar expended on schools in other cities?

21. Do you know that it has required $____ during the past five years to keep the old buildings in repair?

22. If new buildings are not erected now, how will the efficiency of the schools be affected?

In the same circular Deffenbaugh outlines the methods used by a few cities in successful school-bond campaigns. Two of the most helpful of these methods follow:

JOHNSTOWN, PENNSYLVANIA

At Johnstown, Pennsylvania, a bond issue of $1,250,000 was recently voted. The campaign was organized in a school committee with James Killius, Director of Vocational Education, in charge of publicity, who has furnished the Bureau of Education the following summary of the activities of the campaign:

1. A mass meeting of all teachers.
2. Organization of citizen committees of 300 by wards and districts.
3. Preparation of a daily memorandum to an 800 mailing list, outlining systematically the arguments for the bond issue.
4. Organized bond-issue songs.
5. Slogans, rimes, etc., with contests in the schools.
6. Carefully prepared, daily, paid newspaper advertising from one-eighth to one-fourth page in two opposing papers.
7. Inserted "Vote 'yes' for school bonds November 2" in four or five places in the local columns of both daily papers.
8. Elimination contests in schools for best four-minute speeches (boys and girls) on the school-bond issue.
9. Slides shown between pictures in all "movies" each evening—"Vote for school bonds."
10. Community meetings, music and entertainments by the schools; addresses by the board of education and leading citizens.
11. Prepared newspaper publicity for every community meeting.
12. Pictures and feature articles descriptive of all undesirable school situations.
13. Four-minute speeches between shows in the theaters and "movies."
14. Display float, "There was an old woman who lived in a shoe," for Halloween celebration.
15. Monster parades of school children just before election day.
16. Billboard poster advertising.
17. Automobile banners.
18. Handbills and dodgers several times during the campaign were sent home by the children.
19. Special bond-issue number of the grade-school, evening-school, and junior-high-school papers.
20. Speeches in the churches by the school children before election day.
21. Lapel tags, "Vote 'yes' for school bonds."
22. Workers' hand cards.
23. Personal workers at the polls.

LONG BEACH, CALIFORNIA

Another instance of a successful school-bond issue that may be cited is that of Long Beach, California, which voted 20 to 1 for a large bond issue. The plan of the campaign as described by the superintendent of schools was as follows:

We have three daily papers, all of which gave enthusiastic support to the campaign. Not a single letter, communication, or editorial of any kind or description during the two months the campaign was on was published that had in it the least suggestion of criticism of the campaign. All of the papers gave without limitation of their space to pictures, cartoons, news items, and editorials.

About 80 per cent of all the eggs sent out from our jobbing houses to the retail trade were stamped with the words "School bonds, vote 'yes,' January 15th." The high-school girls stamped 108,000 eggs that went into almost every home in the city.

The radio station of the *Los Angeles Times* broadcast bond speeches for us that were heard all the way from New York to the Philippines.

Automobile stickers, with the words "School bonds, vote 'yes,' January 15th," were used by the thousands.

Earl Dougherty, one of our aviators, on election day flew over the city scattering thousands and thousands of dodgers.

The Foster & Kleisner Signboard Company donated for our use ten of their largest signboards located in the most conspicuous places in the city.

On election day one of our motor-vehicle companies donated one of their largest busses for our high-school band, which traversed the various streets of our city.

Practically every organization of any kind or description in the city gave time on the program for one of our speakers.

In all the voting precincts the children put on parades of various kinds and descriptions. On election day continuous entertainment was afforded the patrons of the school in the various school buildings which were the precinct polling places. We succeeded in getting out the largest vote that we have ever had on a school-bond campaign.

The parent-teacher organizations made a house-to-house canvass with the official statements of the board of education. . . .

On the morning of election day every child placed under the plate of his father and mother a little note which he had written in school to the effect that this was election day and that father and mother should remember to vote.

Examples of publicity material. Listed herewith are some examples of publicity material which have been used with telling effect in school-bond campaigns in various communities; the opportunities for designing such material are of course legion.

Citizens of Menasha

Listen! This Means Much to You!

WE MUST EDUCATE OUR CHILDREN

The merchants and manufacturers of Menasha, who pay over three fourths of the city tax, appeal to you to vote favorably for the bond issue for an addition to the high school.

The cost to you to pay *interest* on bonds is 48 cents per year on $1000 of assessment. If you have a house assessed at $1000 the interest on bonds will cost you 48 cents on that house per year for the next fifteen years. Adding the *interest* to the *bonds* themselves and dividing into a twenty-year period would mean a cost to you of $1 per year on each $1000 of your assessment. This means that if you have a house assessed at $2000, the tax you pay on bonds and interest would be $2 per year.

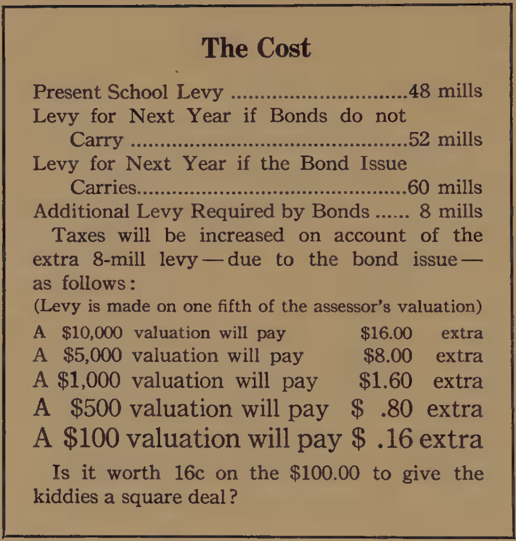
Send your children to the high-school grounds on the forenoon of Labor Day, Monday, September 1, 1919, to participate in the big parade headed by the Ninth Regiment Band.

Parade starts at 9 A.M. Will end at the Triangle. Concert until noon.

Everybody Turn Out. Young and Old

FIG. 20. A good handbill

A copy of this handbill was placed in every home in Menasha, Wisconsin, two days before the election



The Cost

Present School Levy	48 mills
Levy for Next Year if Bonds do not Carry	52 mills
Levy for Next Year if the Bond Issue Carries	60 mills
Additional Levy Required by Bonds	8 mills

Taxes will be increased on account of the extra 8-mill levy — due to the bond issue — as follows:

(Levy is made on one fifth of the assessor's valuation)

A $10,000 valuation will pay	$16.00	extra
A $5,000 valuation will pay	$8.00	extra
A $1,000 valuation will pay	$1.60	extra
A $500 valuation will pay	$ .80	extra
A $100 valuation will pay	$ .16	extra

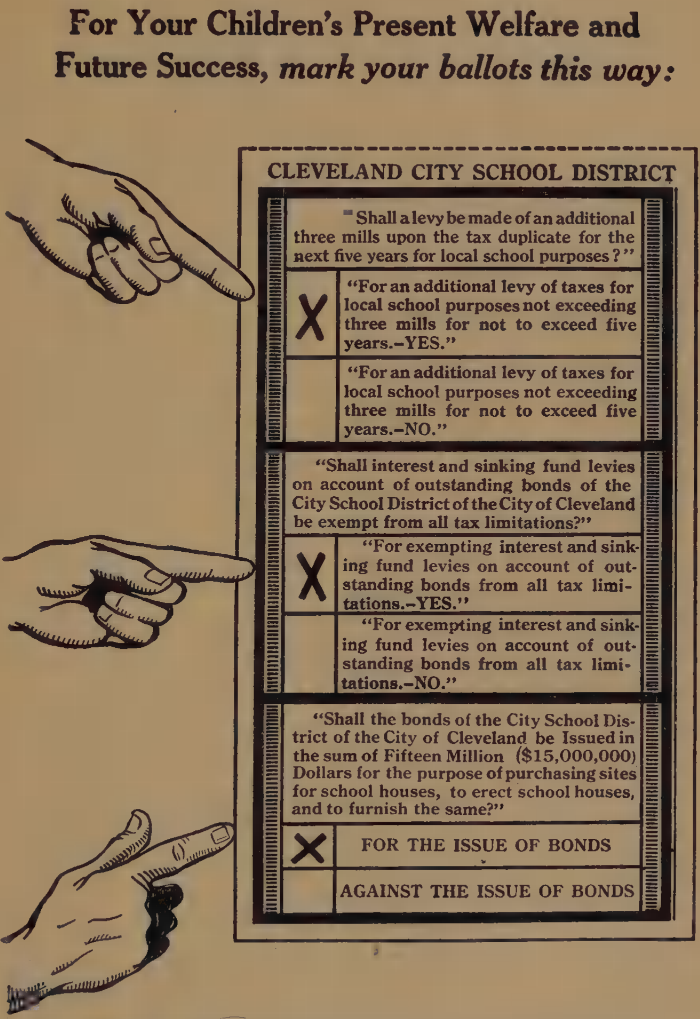
Is it worth 16c on the $100.00 to give the kiddies a square deal?

FIG. 21. Sample page from a publicity folder used recently in Lincoln, Nebraska

Methods of Selling Bonds

After the bonds have been voted they must be prepared for sale and sold, before the school district can receive the money needed. Two methods may be used in selling school bonds: public sale and private sale.

Public sale. In a public sale the bonds are advertised for a certain period of time with the expectation of securing the best bid possible. This method is used by most school systems; in fact, it is prescribed by statute in most states. It is usually the best method to use, because it motivates bidding and thus is more likely to secure a better bid for the bonds; moreover, it gives all bidders an equal chance and protects the board of education from the charge of partiality and of using unbusinesslike methods.



For Your Children's Present Welfare and Future Success, *mark your ballots this way:*

CLEVELAND CITY SCHOOL DISTRICT

"Shall a levy be made of an additional three mills upon the tax duplicate for the next five years for local school purposes?"

☒ "For an additional levy of taxes for local school purposes not exceeding three mills for not to exceed five years.–YES."

☐ "For an additional levy of taxes for local school purposes not exceeding three mills for not to exceed five years.–NO."

"Shall interest and sinking fund levies on account of outstanding bonds of the City School District of the City of Cleveland be exempt from all tax limitations?"

☒ "For exempting interest and sinking fund levies on account of outstanding bonds from all tax limitations.–YES."

☐ "For exempting interest and sinking fund levies on account of outstanding bonds from all tax limitations.–NO."

"Shall the bonds of the City School District of the City of Cleveland be Issued in the sum of Fifteen Million ($15,000,000) Dollars for the purpose of purchasing sites for school houses, to erect school houses, and to furnish the same?"

☒ FOR THE ISSUE OF BONDS

☐ AGAINST THE ISSUE OF BONDS

FIG. 22. Sample page from a Cleveland, Ohio, folder

A few states have passed laws requiring boards of education to offer their bonds first to some division of local or state government. For example, in Ohio, boards of education must first offer their bonds to the local sinking-fund commission. If the sinking-fund commission does not wish to buy the bonds, they must then be offered to the state industrial commission. The laws require, however, that the state industrial commission must pay, if it wishes the bonds, as much as any prospective buyer has offered. Kansas, New Jersey, and North Carolina have somewhat similar laws.

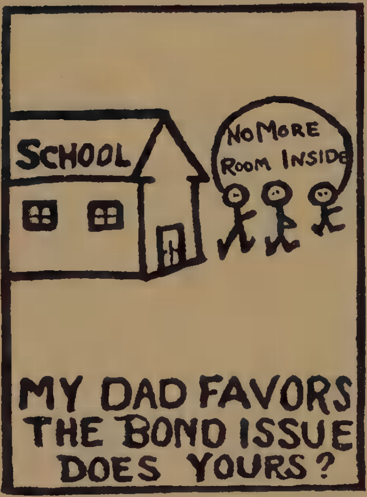

SCHOOL
NO MORE ROOM INSIDE
MY DAD FAVORS THE BOND ISSUE DOES YOURS?

FIG. 23. Sample of a pupil's cartoon used in Johnstown, Pennsylvania

Private sale. In a private sale the board of education does not necessarily receive bids for the bonds. A private sale has the advantage of permitting the board of education to sell its bonds on short notice and thus to take advantage of the market. Because of the changing condition of the money market, bonds sell at certain times better than at other times; a public sale does not permit taking advantage of the money market as readily as does a private sale.

Marketing the Bonds

Any kind of public bond is generally considered to be an excellent investment. As a rule, school bonds are considered to be good investments. Lawrence Chamberlain[1] says:

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[1] *The Principles of Bond Investment*, p. 103.

School bonds are usually emitted for the purchase, construction, and equipment of school property. Their standing in the investment world is somewhat better, perhaps, than any other class of municipals, except water bonds, for, although the object for which they are put forth is not revenue-producing, yet they represent, in the eyes of a community, the noblest purpose for which it can pledge its good faith.

In order that school bonds may be marketed to the best advantage and that there shall be no errors in their marketing, the following suggestions are worth keeping in mind:

Legal details. Most states prescribe in considerable detail the method of issuing school bonds and insist that these details be followed. Unless these details are carefully looked after, the bonds, even after they have been voted and sold, may be invalidated. There have been numerous instances of invalidation of bonds, and many of such invalidations have been due to the violation of a minor detail of law. In issuing bonds, boards of education should have the advice of a competent attorney. Such advice, although it costs something, will often save the board much trouble, delay, and expense.

Advertising of sale. School bonds should be advertised in order that as many bids for them as possible may be secured. Such advertising is prescribed by statute in most states. Generally speaking, the statutes require that the sale be advertised in a newspaper of general circulation for a given period of time. Regarding the advertising mediums that may be employed the following suggestions are given:

In the first place, the bonds should be advertised in a newspaper of general circulation. The laws of most states prescribe within certain limits the paper or papers in which the sale shall be advertised; the laws also frequently prescribe the number of issues of the paper or papers in which the advertising shall be carried. In the second place, although it may not be required by law, the sale should be advertised in at least one of the larger financial journals. Some of the larger financial journals are listed herewith:

The Bond Buyer, 67 Pearl Street, New York City. This is a weekly record of government, state, and municipal bonds and has a national circulation. Probably more bonds are advertised in it than in any other financial paper.

The Commercial and Financial Chronicle, Front, Pine, and Depeyster Streets, New York City. This is also a weekly paper of national circulation.

The Wall Street Journal, Dow, Jones, and Company, New York City. This is one of the leading financial dailies. It also has a national circulation.

The Boston News Bureau, 30 Kilby Street, Boston. This is another financial paper of daily and nation-wide circulation.

The Economist, 112 North La Salle Street, Chicago. This is a weekly publication which claims to have a national circulation, but which claims particularly a circulation in the central part of the United States.

The Commercial West, Commercial West Company, Minneapolis. This is a weekly journal devoted largely to banking and investments. Most of its circulation is in the Northwest and particularly in the territory surrounding its place of publication.

The Coast Banker, San Francisco. This is a monthly paper and is designed particularly to serve the states of the western part of the United States. The states in which it claims to operate particularly are Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

The Pacific Banker, 315 Lumbermens Building, Portland, Oregon. This is the chief financial paper of the Pacific Northwest and is issued fortnightly.

In the third place, a circular letter advertising the bond sale should be sent to bankers, investment brokers, and other prospective buyers. This is a form of advertising that has not been much used; however, school boards that have tried it claim that it is one of the most effective ways.

The advertisement should be calculated to tell the chief characteristics of the bond issue and to capture the attention of the prospective purchaser. The prospective buyer of bonds is interested in knowing such things as the issuing body, the amount of the issue, the rate of interest, the date and the time of sale, the date on which bids are to be closed, the amount of money that must be deposited as a guaranty of good faith, and the name and address of the person or persons in charge of the sale and from whom further information may be secured. Herewith are examples of a brief "ad"[1] and a more complete "ad"[2] (p. 200).

$250,000

TOWN OF SOUTHEAST

NEW YORK

Union Free School District
No. 13 Bonds

Union Free School District No. 13, as consolidated, of the Town of Southeast, Putnam County, New York, is offering for sale $250,000 of 4½% bonds, maturing serially from June 1, 1926, to June 1, 1965. Bids will be received by the Board of Education of said Union Free School District at its office, Putnam County Savings Bank, Brewster, New York, up to

SATURDAY, MAY 9th, 1925,

at 12 o'clock noon.

For further particulars address

ARTHUR G. STRANG,
Clerk
Brewster, N. Y.

Time of sale. In most states, school bonds are authorized at the regular election in November and are sold as soon thereafter as arrangements can be made. Little attempt seems to be made on the part of school officials to sell their bonds at the most propitious times; rather, they are offered for sale on a "hit or miss" plan at any time of the year without regard to the condition of the money market. As opposed to this practice of school officials, notice the practice of the United States Treasury as outlined in the Treasury report for the year ending June 30, 1925 (given on page 201).

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[1] Advertisement in the *Bond Buyer* (May 2, 1925). Vol. LXX, p. 9.

[2] Ibid. p. 6.

$120,000

EAST GREENWICH TOWNSHIP

NEW JERSEY

SCHOOL-DISTRICT BONDS

SEALED PROPOSALS will be received by the Board of Education of the Township of East Greenwich, New Jersey, on

TUESDAY, MAY 5th, 1925,

at 8 P. M., Daylight Saving time, in the School House, Clarksboro, New Jersey, for the purchase of School District bonds of said Board of the authorized amount of $120,000. Said bonds will be of the denomination of $1000 each, will be dated January 1, 1925 and will mature $4000 on January 1st in each of the years 1926 to 1955, both inclusive.

Said bonds will bear interest at 5 per cent per annum, payable semiannually on the first days of January and July in each year. Both principal and interest will be payable in lawful money of the United States of America at the Farmers National Bank of Mullica Hill, New Jersey. The bonds will be coupon bonds, with the privilege of registration as to principal only, or as to both principal and interest.

No more bonds of said issue will be sold than will produce a sum equal to the authorized amount of such issue and an additional sum of less than $1000. The sum required to be obtained at the sale of said bonds is $120,000. Unless all bids are rejected, said bonds will be sold to the bidder or bidders complying with the terms of sale and offering to pay not less than said sum and to take therefor the least amount of bonds commencing with the first maturity (stated in a multiple of $1000); and if two or more bidders offer to take the same amount of said bonds, then to the bidder or bidders offering to pay therefor the highest additional price. The right is reserved to reject all bids, and any bids not complying with the terms of this notice will be rejected. In addition to the amount paid, the purchaser must pay accrued interest at the rate borne by the bonds from the date of the bonds to the date of payment of the purchase price.

All bidders are required to deposit a certified check, payable to the order of the Custodian of School Moneys for 2 per cent of the amount of bonds bid for, drawn upon an incorporated bank or trust company. Checks of unsuccessful bidders will be returned upon the award of the bonds. Interest at the rate borne by the bonds from the date of award to date of delivery will be allowed upon the amount of the check of a successful bidder, and such check will be retained to be applied in part payment for the bonds or to secure the Board against any loss resulting from the failure of the bidder to comply with the terms of his bid.

Proposals should be addressed to District Clerk, Clarksboro, New Jersey, and enclosed in a sealed envelope marked on the outside "Proposal for School-District Bonds."

The successful bidders will be furnished with the opinion of Messrs. Hawkins, Delafield and Longfellow, of New York City, that the bonds are binding and legal obligations of the Board.

By order of the Board of Education.

Dated, April 21, 1925.

HOWARD O. STETSER,
District Clerk

> The Treasury knows with substantial accuracy how much of the debt should be retired each year and how much should be refunded, with a varying margin of possible retirement or refunding. It also knows how much of the debt ultimately should go into long-term bonds, and how much should be turned over in short-term obligations. The determination of the character of the securities to be issued depends, then, on the maturities which are desirable from the standpoint of the Treasury, and upon the cost of the different types of financing. This fixes the character of the issue, whether certificates of one year or less, notes up to five years, or bonds up to any maturity, or a combination of any of these issues. . . .
>
> The yields on outstanding Government securities move in harmony with prevailing interest rates and are controlled by the same general forces. . . .
>
> The factors which the Treasury must take into consideration in floating a new issue of securities are practically the same as those which must be considered by an investment banker in floating new issues for his clients. All Government offerings are made on a strict investment basis. The Treasury always aims to sell its securities at the lowest possible interest rate consistent with their successful distribution among investors, and with this in view, it always gives close attention and consideration to the market quotations on outstanding securities and to prevailing money-market conditions in connection with the determining of the amount and terms of these issues. The Treasury wishes to secure the lowest rate that the market will offer.

Regarding the broad seasonal swings that affect the money market and that should be kept in mind in selling school bonds, W. E. Lagerquist[1] says:

> As further pointed out in Kemmerer's Congressional report (Senate Documents, 61st Congress, 2d session) in discussing the seasonal swing of the calendar year, there is a decided easing of the money market in January, which extends into February, usually making a "cheap money" market at the end of January and the beginning of February. The reasons for this first movement are: the subsistence of crop-moving demand and the consequent return

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[1] *Investment Analysis*, pp. 186–187.

of cash to New York, the relatively small amount of freight traffic and the large amount of exports in January. The second seasonal swing usually begins somewhere between the middle and the last of February and extends into April. This second upward swing can be chiefly attributed to the demand for cash for spring planting, the renewed building activity, the payments of obligations and interest, and a minor movement of cash payments to New England manufacturers. The third seasonal swing extends from the close of this former period to the middle of June or early July and is due to the influence of foreign trade, the decline in money rates and the movement of money to New York, and the discount in trading made in anticipation of the fall demands. The fourth movement, marked by the first crop movements, is anticipated by an upward swing of call rates and a lowering of bank reserves and an increase of the ratio of loans to deposits. This period proceeds into a fifth movement, which is largely a continuation of the fourth, but with a more decided upward trend about October first, which continues well toward the end of the year. The chief cause of this last movement is the demand for cash to move the crops and is sustained by the trade activity of the holidays. . . .

The season effect on bond prices does not cause them to move consistently, or regularly. Also, individual prices may not fluctuate very much, but collectively for the year these fluctuations extend into millions. Bond prices tend to increase in January under the stimulus of an easy money market and to decline quite steadily till the climax of the second swing. With the beginning of the second weak seasonal market, bond prices normally rise to their highest point in early summer. From the first of June until the first of September, bond prices normally take their first pronounced downward move and continue even more steadily until the middle of November, when they tend to move upward following an unsteady advance during December.

Writing on the topic of *When to Issue School Bonds*, H. F. Clark and Paul Royalty say:[1]

The difference in monthly rates and monthly yield is not large, but on the school bonds outstanding in the United States the difference will amount to millions of dollars. A conservative estimate of the school bonds outstanding at the present time is $3,000,000,000. If these bonds were issued in January the annual interest charge would be $9,600,000 more than the interest charge if they were issued at the average rate throughout the rest of the year. The difference between the January rate and that of the low month is only slightly over one half of 1 per cent (our present incomplete figures show it to be approximately that) and might seem to be trivial, but the interest differences on the school bonds outstanding would amount to $15,000,000 per year.

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[1] *When to Issue School Bonds*, p. 11.

To summarize, May, June, July, August, and January 15 to February 15 are, other things being equal, the best times to sell bonds. It should be remembered, however, that local factors are always operating as well as the broad seasonal swings, and each community must take cognizance of these local factors. Weather and crop conditions, building construction, and the condition of industries are among the local factors that are potent in determining the demand for money and interest rates.

Redemption of Bonds

1. *Plans of Redemption*

There are three plans of redeeming bonds. These plans take their names from the types of bonds. They are straight bond, sinking-fund bond, and serial bond.

Straight bond. A straight bond runs for a specified number of years, and all of it is redeemed at the end of that period. The interest, however, is paid annually, semiannually, or quarterly. The straight bond is not recommended, because it entails a heavy interest charge and requires a large tax rate when the time to redeem it comes. In fact, many communities have issued straight bonds and have found themselves unable to redeem them when they came due. What they have usually done in such instances has been to *refund*; that is, they have resold the bonds for another specified number of years. In such practices the interest charges often amount to two or three times as much as the principal.

Sinking-fund bond. A sinking-fund bond is similar to a straight bond in that it is issued for a specified number of years; it is different, however, in that provision is made for a sinking fund, — that is, for the collection of a certain sum of money annually to be placed in a fund which will be sufficient to redeem the bond when it is due. At first thought, the creation of a sinking fund seems to be an excellent plan for financing capital outlays. It is not recommended, however, because most communities will not, or at least do not, administer the sinking fund in a businesslike manner. N. L. Engelhardt[1] summarizes the disadvantages of the sinking-fund bond as follows:

> The practice of amortizing the bonded obligations of school systems by means of a sinking fund has been rather common. The two types of sinking funds found in American cities are those with and those without investments. Judging from studies that have been made on the administration of sinking funds, it appears that neither type of fund is satisfactory in providing payment for bonds. The prevailing criticisms against the sinking-fund plan are (1) the misuse of sinking-fund moneys on the part of public officials, (2) the unscientific basis employed in the calculation of sinking-fund requirements, (3) the difficulty of instructing the public in the complex nature of sinking-fund plans, (4) the failure to provide for proper investment of funds, (5) the inability of a democracy to constantly provide the financial leadership necessary for the proper maintenance of the fund, (6) the failure to establish a proper fund and to make adequate annual contributions thereto so that there will be a sufficient amount in the fund to meet the debt at maturity, (7) the failure of proper audits by others than the governing parties, (8) the success of the serial-payment plan of bonding and its ease

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[1] *A School-Building Program for Cities*, p. 113.

of comprehension by the public, (9) the lack of appreciation on the part of governing bodies of the importance of sinking-fund obligations — the primal security of the bond holder.

Serial bond. A serial bond is issued for a specified period, but a certain portion of the principal is retired at a stated time. The interest is paid annually, semiannually, or quarterly, as in the straight and sinking-fund bonds.

With the serial bond four plans of redemption may be used. These are first, the annual installment plan, in which the amount of principal paid each year is the same or approximately the same; for example, in a bond issue of $100,000 running for a term of twenty years, $5000 is paid on the principal each year. Second, the plan in which the sum of the principal and interest paid each year is the same or approximately the same; in this plan the amount of interest is largest during the first few years and is least during the later years. Third, a plan in which the payments on the principal are largest during the first few years and smallest during the later years. Fourth, a plan in which the payments on the principal are largest during the later years and smallest during the first years.

The serial bond is generally used by progressive communities. In fact, its advantages are so generally recognized that it is prescribed by law in many states. It is recommended by most financial authorities because of its ease of administration and because the community is obliged to pay for its bonds as it goes along.

2. *Length of Term*

Bonds should not be issued for a longer term than the finances of the community make necessary. This suggestion is based on the theory that it is good business to eliminate interest charges as soon as possible. On the other hand, the term should not be so short that the redemption of the bonds would put an undue financial strain on the taxpayers or make it necessary to retrench in expenditures for current expenses such as teachers' salaries. Under no consideration should the length of the term be greater than the anticipated life of the improvement.

3. *Provision for Recall*

In selling their bonds some boards of education provide that the bonds may be recalled at any time, or after a certain period of time has elapsed. The advantage to the seller in having a recall provision is that a bond issue, which may have been sold at a low premium rate or at a high rate of interest, may be recalled at a more propitious time and sold again at a higher premium or a lower rate of interest. Moreover, a recall provision enables a board of education which has placed its finances in good order to retire the bonds and thus eliminate the payment of interest.

Most buyers, however, consider that a recall provision is a mark against an investment. The purchaser of bonds usually wants his money to be invested for a considerable number of years; he does not fancy the trouble of having to reinvest his money. Generally speaking, therefore, a recall provision in a bond issue results in bonds not selling to so good an advantage as they otherwise would. Of course, if desired, there can be a compromise; that is, a provision can be written in the bonds to the effect that they cannot be recalled before a certain number of years, say five, has elapsed.

4. *The Maturity Schedule*

A discussion of the maturity schedule involves a consideration of two things: the amount of principal to be paid annually and the denomination of the individual bonds.

Rate of redemption. In discussing the serial bond it was noted that there are four types of redemption schedules.

The plan of redemption which would best meet the financial needs of the community should be selected. As previously stated, good business dictates that the principal should be paid as rapidly as possible in order that the interest charges may be decreased. On the other hand, the rate of redemption should not be so rapid that too large a financial strain will be placed on the community.

Denomination of bonds. Bonds should be issued in denominations sufficiently small so that investors of little means would be interested in their purchase. On the other hand, the issuance of them in denominations that are too small makes the administration of them more difficult. Large investors, who purchase most of the bonds, prefer bonds of larger denominations. Many states stipulate that public bonds shall be issued in denominations of $100 or in some multiple thereof. Several states stipulate a $50 denomination or some multiple of it; New Mexico requires denominations of not less than $25 and of not more than $500.

5. *Accounting for Bonds*

Boards of education should keep an accurate record of their bonds. Some of the more important data which should be kept are total outstanding school-bonded indebtedness; amount of bonds maturing each year; the improvements secured by each issue; the rate of interest of each issue; and the time and place for paying the principal and the interest on each issue. If there is a considerable amount of bonding it is advisable to have a bond book in which to record the foregoing data. In any event there should be certain forms for this purpose, and the forms should be carefully kept. We are displaying in Figs. 24, 25, 26, and 27 samples of the Strayer-Engelhardt forms which may be used in recording data on school bonds.[1]

[1] Published by C. F. Williams and Son, Albany, New York.

Name of City________________________ State________

Years	Assessed Valuation of Taxable Property	Maximum Amount of Bonds Permitted by State (___%)	Total Amount of Outstanding Bonds	Unused Bonding Capacity	Total Amount of Bonds Maturing Each Year	Total Amount of Bond Issue Legally Possible Each Year
19						
19						
19						

FIG. 24. Summary of bonds issued for educational purposes

YEARS______________ TO__________

Name of City____________________ State__________

Date of Issue	Series or Number	Amount of Issue	Kind of Bond	Denominations	Maturity Dates	Provisions for Payment	Rate of Interest	Purchaser or Holder	Sale Price of Entire Issue

FIG. 25. Total amount of bonds issued for schools, showing date, amount, and maturity of each issue

	ORIGINAL SITE OR BUILDING	FIRST ADDITION	SECOND ADDITION	THIRD ADDITION	FOURTH ADDITION	FIFTH ADDITION	TOTAL
Year of purchase of site							
Date of construction							
Cost of land and grading							
Cost of building construction *							
Cost of furniture and fixed equipment . .							
Cost of architects', engineers', brokers', and supervision services							
Total cost							
Type of material used in construction . .							
Manner of payment .							
Number of regular classrooms							
Names of all special rooms							
Remarks							

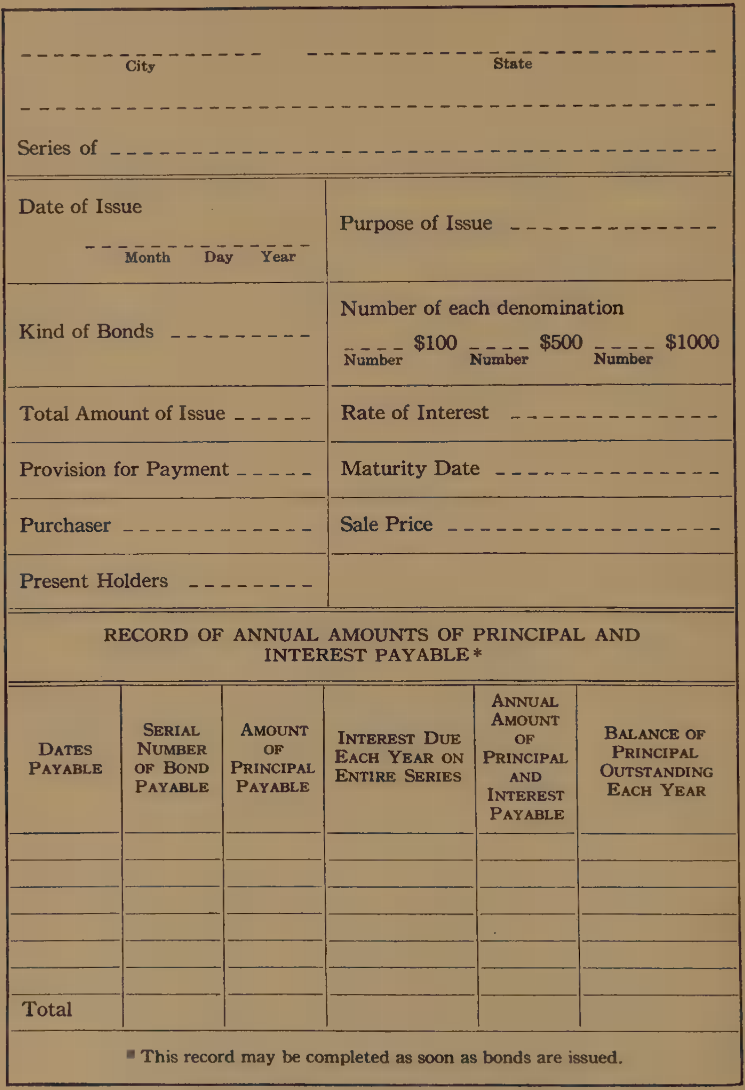
* See Report of the Committee on School-Building Measurements (1919), American Institute of Architects, Washington, D.C., for method of calculating costs.

FIG. 25 (Concluded)

Page* Series School	Year		Year		Year	
	Principal	Interest	Principal	Interest	Principal	Interest
Totals for Each Yr.						

*Indicate page of detailed record for each issue.

FIG. 26. Summary of total amounts of principal and interest due each fiscal year on bonded indebtedness for school purposes



__________________ City __________________ State

____

Series of __________________________________

Date of Issue ________ Month Day Year	Purpose of Issue __________
Kind of Bonds __________	Number of each denomination ____ Number $100 ____ Number $500 ____ Number $1000
Total Amount of Issue _____	Rate of Interest ____________
Provision for Payment _____	Maturity Date _____________
Purchaser ____________	Sale Price _______________
Present Holders ________	

RECORD OF ANNUAL AMOUNTS OF PRINCIPAL AND INTEREST PAYABLE*

DATES PAYABLE	SERIAL NUMBER OF BOND PAYABLE	AMOUNT OF PRINCIPAL PAYABLE	INTEREST DUE EACH YEAR ON ENTIRE SERIES	ANNUAL AMOUNT OF PRINCIPAL AND INTEREST PAYABLE	BALANCE OF PRINCIPAL OUTSTANDING EACH YEAR
Total					

* This record may be completed as soon as bonds are issued.

FIG. 27. Detailed record of all issues of school bonds

SELECTED REFERENCES

Alexander, Carter, and Theisen, W. W. *Publicity Campaigns for Better School Support.* World Book Company, 1921. 164 pp.

Describes various methods of conducting publicity campaigns for better school support; reproduces many good charts that were used in successful publicity campaigns.

Clark, H. F., and Royalty, Paul. *When to Issue School Bonds.* School of Education, Indiana University, 1926. 16 pp.

Discusses relation of bond prices to money rates.

Engelhardt, N. L. *A School-Building Program for Cities,* pp. 111–124. Teachers College, Columbia University, 1918.

A brief discussion of the various plans of paying for school buildings.

Fowlkes, J. G. *School Bonds.* Bruce Publishing Company, 1924. 177 pp.

The most complete single reference; discusses such matters as justifying the issue, retirement of the issue, and legal aspects.

Garvey, N. F. "The Legal Status of School Bonds," *American School Board Journal* (March, 1926), Vol. LXXII, pp. 51–52.

A study of the laws of the various states on school bonds.

Henzlik, F. E. *Rights and Liabilities of Public-School Boards under Capital-Outlay Contracts.* Teachers College, Columbia University, 1924.

A study of such rights and liabilities as are found in the school laws and court decisions.

Lindsey, E. E. "Selling Bonds for School Buildings," *American School Board Journal* (June, 1921), Vol. LXII, pp. 49–50.

Suggests that boards of education create a fund for school buildings.

McElhannon, J. C. "Judicial Interpretation of Laws relating to School Bonds," *Elementary School Journal* (November, 1922), Vol. XXIII, pp. 215–226.

A list of and discussion of court decisions.

Meyer, C. H. "Marketing of School-Bond Issues by Small Cities," *American School Board Journal* (August, 1921), Vol. LXIII, pp. 36–38, 125.

Suggestions on marketing school bonds; points out the necessity of following the statutes.

Powers, L. C. "Serial Loans vs. Long-Term Loans," *American School Board Journal* (July, 1916), Vol. LIII, pp. 19–20.

A discussion of the most efficient methods of retiring school bonds; makes a plea for serial bonds.

Rainey, H. P. "Financing the Capital Costs of Education," *American School Board Journal* (December, 1926), Vol. LXXIII, pp. 61–62, 140.

Suggests a technique to use in figuring costs of capital outlay in securing operating costs.

Reeder, W. G. "Measuring the Ability of a Community to Finance a Building Program," *American School Board Journal* (November, 1925), Vol. LXXI, pp. 65, 138, 141; (December, 1925), Vol. LXXI, pp. 65, 126.

Suggests types of comparative data to collect.

Smith, T. K. "How a School District can obtain the Best Price for its Bonds," *American School Board Journal* (January, 1925), Vol. LXX, pp. 73–74, 130.

Suggests ways of making school bonds attractive to purchasers.

Stevenson, P. R. *Campaign Publicity for Schools.* Ohio State University Press, 1926. 59 pp.

Discusses how to conduct a publicity campaign; presents many samples of posters, charts, etc.

Strayer, G. D., and Engelhardt, N. L. *School-Building Problems*, pp. 563–585. Teachers College, Columbia University, 1927.

Discusses plans of financing building programs, and cost of buildings and equipment.

Talbert, W. E. "To Bond or Not to Bond," *American School Board Journal* (April, 1918), Vol. LVI, pp. 21–22, 76.

Presents arguments for and against bonding; an excellent summary of such arguments.

"Conducting a School-Bond Campaign," *American School Board Journal* (January, 1925), Vol. LXX, p. 90.

A detailed outline of the steps that were taken to "put over" a school-bond issue in Marietta, Ohio.

CHAPTER XI

USE OF SCHOOL BUILDINGS

Using School Buildings to Capacity

In Chapter VII it was remarked that before school officials may justifiably ask the people of a community to provide funds for additional school buildings, it must be proved that the present buildings are being used to capacity and are not supplying adequate space for all the pupils. A large school building costs several hundred thousand dollars; in fact, each classroom represents an expenditure of several thousand dollars. Therefore not only is there a great waste of space but also of money when the building or any part of it is not in use. If in calculating expenses for any year, school officials were required to place a charge of 4, 5, or 6 per cent on their capital investment, as private enterprises usually do, the useless expenditure for idle school buildings or parts of such would be brought forcibly to attention.

It is often remarked, and probably truthfully, that the typical private business would soon become bankrupt if it did not use its plant during a greater number of hours than do the schools. School buildings are generally used but eight or nine months in the year, five days of the week, and six or seven hours during the day; the remainder of the time — which is by far the major portion — the building stands idle. The well-conducted private business, on the other hand, uses its plant the year round, often both night and day.

Industry will probably continue to use its plants to greater advantage than the schools, for it is difficult to believe that school buildings will ever be used throughout twenty-four hours of the day. Devices already tried to secure a continuous use of the school plant, such as a twelve-months school and double sessions, have attained little vogue, because it is thought that they often impair the educational welfare of the pupils. It would be possible, of course, to operate school buildings on the factory schedule, — that is, twelve months in the year and ten, twelve, or more hours every day, — but it is doubtful whether even an enemy of public education or a miser would support such a policy; certainly the public would not. The public does insist that the buildings which are now available be used to capacity or to near capacity during the *school day*; when such use is demonstrated the community stands ready and willing to provide additional buildings as they are needed.

Before the school system proposes a new building, it should make a systematic check of the use of its present buildings. Where this has been done some interesting, even startling, facts were revealed. Such checks showed, for example, that most school buildings were not being used to their full capacity. They also brought out that school buildings which were erected for a given number of pupils — a number thought to be an optimum or maximum number — could really include many more pupils without handicapping educational efficiency.

When a certain superintendent of schools in a city of approximately three hundred thousand population was elected to his position a few years ago, he found much talk of what appeared to be a serious shortage of school buildings. Many children in that city were on half-day school rations. With the coöperation of his principals, this enterprising superintendent of schools surveyed the efficiency with which the school buildings were then used. He found in practically every school building at least one classroom which was not used at all or only during a small part of the school day. With the aid of an up-to-date program this superintendent and the principals placed the several buildings in full use; that is, they placed every room in use every period of the day and put the maximum number of pupils in each room. By means of this investigation, which required only a few hours of time to make, full-day school rations were provided for approximately fifteen hundred more pupils. If these pupils could not have been "squeezed" into the present plant, an expenditure of approximately $300,000 would have been necessary for new buildings. This superintendent of schools and his principals earned their salaries for a year or more by this educational engineering and foresight.

What that superintendent did should be done in every school system before additional housing facilities are provided. Since it suggests what can be done in any school system, a technique is described herewith which was used in a high school of a large city to ascertain the efficiency with which its building was being used.[1] The high-school building in question, occupied first in September, 1923, was originally designed to accommodate 1800 pupils. However, by September, 1925, 2050 were being accommodated; at that time the high-school principal reported that the city would probably have 2500 pupils to accommodate by September, 1926. The problem was, therefore, how to house that many in a building designed three or four years earlier for 1800 pupils.

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[1] For the data in Table IV and for a description of the technique used, the author is indebted to his colleague Dr. E. E. Lewis. A complete statement of this investigation is reported by Dr. Lewis in his article "Using School Buildings Efficiently," in the *Educational Research Bulletin* (January 19, 1927), Vol. VI, pp. 23–27.

How did that high-school principal solve the problem? He "stretched" the building to make it accommodate the enrollment in September, 1926. He did even more: he ascertained that the building could house 2872 pupils, if it were used to 80 per cent of its capacity. The data on the actual and the maximum use of this building are shown in Table IV. The table shows pertinent facts regarding the thirty-four regular classrooms and thirty-seven special rooms. Because of the nature of the special rooms the facts regarding each of them are given in detail in the table.

Column 1 indicates the kind of room, column 2 the number of the room, and column 3 the number of square feet of floor space in each room. Column 4 shows the pupil capacity of each room per period (for the regular academic activities 16 square feet of space were allotted for each pupil). Columns 5, 6, and 7 show the weekly pupil capacity of each room, if each were used to within 100, 90, or 80 per cent of its capacity. Column 8 indicates the actual use of each room during the week of November 9 to 16, 1925, and column 9 shows the per cent of maximum capacity at which each room was used. It may be said that the weekly capacity of a room was procured by multiplying the period capacity by the number of periods per school day, which was in turn multiplied by the number of days per school week. The final product of these multiplications was called 100 per cent, on the theory that a room so used was used to its maximum efficiency under the program in operation. The *actual* weekly use was similarly computed for each room.

It was found that the weekly capacity of the building, based on a 100 per cent usage, was 106,380 pupil "sittings." The number of sittings actually used was only 58,848. In other words, the actual sittings were only 55 per cent of the potential sittings. As has usually been found in such surveys of other buildings, the special rooms in this high school were not being used as much as the regular rooms; for the special rooms, the per cent which the actual use was of capacity was 46, and for the regular classrooms it was 76 per cent.

A glance at a table such as Table IV readily shows school officials how efficiently each room is being used. Unless such data are collected, school officials cannot know whether each room is carrying a proper load. In the following quotation Lewis argues for the maintenance of as close a relation as possible between the size of a class and the size of the room in which the class meets. If a class is too small for the room in which it meets, there is an obvious waste of space; on the other hand, if a class is too large for the room in which it meets, the educational progress, health, and safety of the pupils are apt to be handicapped. Lewis[1] says:

> Two examples of rooms which were not used efficiently will make clear the use of this table. Classroom 120, which measured 22 feet by 36 feet and contained 792 square feet of floor space, was capable of accommodating 50 pupils per period (16 square feet per pupil), or 1500 pupils during the thirty periods of the week, but was being actually used to only 24 per cent of its capacity. What should the principal do in such a case? Obviously, he should assign the very largest possible classes to this room. Although it might not be possible for him to fill such a large room every period, he undoubtedly could increase its efficient use from 40 to 60 per cent. This particular room was equipped with seats for 50 pupils, and, by rearranging the schedule, it was possible to increase its use by more than 40 per cent. Room 122, a classroom of typical size, 22 feet by 26 feet, was used only 42 per cent of the time. Many small classes were scheduled to meet in this room. When these small classes were transferred to smaller rooms and this room was used by classes of normal size, its efficiency was increased from 42 to 48 per cent.

[1] "Using School Buildings Efficiently," *Educational Research Bulletin* (January 19, 1927), Vol. VI, p. 26.

TABLE IV. REPORT ON ESTIMATED CAPACITY AND ACTUAL USE OF THE F_ _ _ _ _ _ _ _ _ _ SENIOR HIGH SCHOOL
FOR THE WEEK OF NOVEMBER 9 TO 16, 1925

TYPE OF ROOM	ROOM NUMBER	NUMBER OF SQUARE FEET IN ROOM	PERIOD CAPACITY	WEEKLY CAPACITY: 100 PER CENT	WEEKLY CAPACITY: 90 PER CENT	WEEKLY CAPACITY: 80 PER CENT	ACTUAL WEEKLY USE	ACTUAL PER CENT USED
1	2	3	4	5	6	7	8	9
Special rooms (37 in all):								
Lunch room	1	418	26	780	702	624		
Metal shop	2	2,100	25	750	675	600	635	87
Sheet-metal shop[1]	2C	946	25	750	675	600	60	8
Junior-college physics laboratory[2]	4	224	10	300	270	240	48	16
Auditorium[3]	101	4,928	986	29,040	26,136	23,232	725	
Stage[4]	101S	637	39	1,170	1,053	936	760	63
Pool	105	1,875						
Printing shop[5]	106,110	1,166	24	720	648	576	225	35
Biological laboratory	112	572	24	720	648	576	509	71
Art	113	880	35	1,050	945	840	530	50
Sewing	119	616	24	720	648	576	645	90
Sewing	121	814	32	960	864	768	600	62
Cooking laboratory	123	880	35	1,050	945	840	485	46
Practice dining-room		196	12	360				
Woodworking shop	124	1,188	30	900	810	720	445	49
Pattern shop[5]	126	968	30	900	810	720		
Cafeteria	127	3,120					2,130	
Boys' gymnasium	202	5,190	85	2,550	2,295	2,040	4,075	80
Girls' gymnasium	205	5,190	85	2,550	2,295	2,040		
Biological lecture	216	572	36	1,080	972	864	1,005	96
Music[5]	218	572	36	1,080	972	864	800	74
Typewriting[6]	219	572	36	1,080	972	864	685	63
Bookkeeping	223	572	36	1,080	972	864	1,045	97
Physics lecture room[2]	225	572	36	1,080	972	864	700	65

Type of Room	Room Number	Number of Square Feet in Room	Period Capacity	Weekly Capacity: 100 per cent	Weekly Capacity: 90 per cent	Weekly Capacity: 80 per cent	Actual Weekly Use	Actual Per Cent Used
1	2	3	4	5	6	7	8	9
Physics lecture room . . .	226	572	36	1,080	972	864	476	44
Physics laboratory	230	814	26	780	702	624	825	105
Chemistry laboratory . . .	232	792	24	720	648	576	890	123
Chemistry laboratory [5] . .	236	972	24	720	648	576	665	92
Chemistry lecture room . .	238	484	30	900	810	720	790	87
Biological laboratory [5] . . .	240	792	24	720	648	576	910	126
Library	300	4,161	150	4,500	4,050	3,600	2,495	55
Junior-college library . . .	300B	961	35	1,050	945	840	1,225	117
Desk room	301A	208	13	390	351	312	45	11
Study hall	303	2,052	128	3,840	3,456	3,072	5,805	151
Desk room	304A	540	34	1,020	918	816		
Mechanical drawing [7] . . .	402	2,071	48	1,440	1,296	1,152	865	60
Radio laboratory	501	704	44	1,320	1,188	1,056	100	7
Total	. . .	49,891	2,323	69,150	61,911	55,032	31,198	46
Regular Classrooms (34 in all):								
Total	. . .	19,792	1,241	37,230	33,507	29,784	27,650	
Average	. . .	582	37	1,095	985	876	813	76
Grand Total	. . .	. . .	. . .	106,380	95,418	84,816	58,848	55

[1] Used three periods daily.

[2] Used in part or wholly by junior college.

[3] This per cent cannot be figured fairly. Based on one class of 35 as the average. Per cent is over 100.

[4] Part of these groups meet in the auditorium.

[5] Number of pupils who elect courses which may be given in this room is small.

[6] Based on room for 39 typewriters, with 32 on hand, raises the per cent to 71 per cent.

[7] Based on a seating capacity of 52. Classes can average 35, giving only 83 per cent.

Another excellent way in which school officials may make clear the extent to which a building is used is by making a pictorial representation of the occupancy of each room during each period of the school week. In Fig. 28 is shown a sample of such pictorial representations. Occupancy of a room is shown in black and vacancy in white.

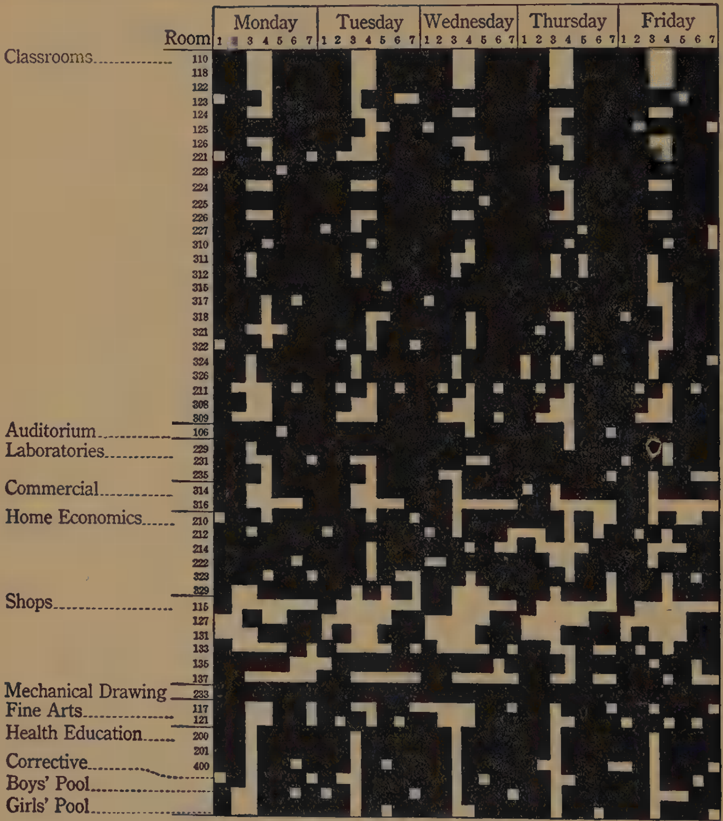

FIG. 28. Occupancy of rooms in an inadequately used junior high school[1]

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[1] H. W. Anderson, A Method for Determining the Housing Requirements for Junior-High-School Programs, p. 26.

In a study similar to the one which Lewis reports, J. B. Sears[1] shows that in a large high-school building whose use he investigated there was little relation between the size of classes and the size of rooms in which the classes met. In connection with his study Sears presented a table which is reproduced here as Table V.

TABLE V. THE RELATION OF THE SIZE OF CLASSES TO THE NUMBER OF SITTINGS PROVIDED IN RECITATION ROOMS

Number of Pupils in Room

Number of Sittings in Room	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
19			2		2					2	6							2																			14
20																																					
21																																					
22										1			1	2	2	2			2	2																	12
23																																					
24			2													2	2		4	2	4	5															21
25								1			2			1	2	1		1	2	3		1	1		3												18
26														3	2			3				4	2														14
27										1	1							1	1		1	1	2	2													10
28	1				1	1	3	2		3	1	4	3	4	4	8	1	16	8	5	16	19	19	16	9	5											149
29																1					1	1			1			1									5
30			1					2	1		2	1		2	2	2	4	2	2	4	10	9	7	3	5	1	1	3	1	1		1					67
31							1					1				2	1																				5
32			1	2		1	1	1			1			1		1	6		3	1	3	2	2	3	1	1		1	2	1							35
33										1			1					1				2		2			2		2								11
34																																					
35																																					
36														4								4															8
37										1				2				1	2																	2	8
Total	1		6	2	3	2	5	6	1	9	12	7	5	13	12	17	13	32	24	18	35	45	35	26	19	11	3	5	5	2		1				2	377

NOTE. This table omits two classes of 5 pupils each and two classes of 8 pupils each, all conducted in a room with 10 sittings. It also omits a class of 43 and a class of 45 pupils, both of which are conducted in a room provided with but 30 sittings; and eight typing classes of from 52 to 67 pupils reciting in a room provided with 69 sittings. The median class here is 22.5. The median class recites in a room provided with 28 sittings. Moreover, this table counts double-period groups as two-class groups.

In explaining the table, Sears says that the middle line of diagonals is drawn so that the figures lying on the line represent classes which fill their rooms. Between the middle line and the right-hand line are classes that fill their rooms from three-fourths to full capacity. The left-hand diagonal shows the point at which the rooms are only half filled. Between the left-hand line and the middle line are represented the classes requiring from one half to three fourths of the available seats in the rooms which they occupy.

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[1] "Some Data on the Cost of School Housing," *American School Board Journal* (June, 1924), Vol. LXVIII, pp. 42–44.

Table V brings out the fact that many desks in most of the classrooms of this particular building are not in use. About one half of the classes meet in rooms which are used from three-fourths to full capacity; about one third, in rooms used from one-half to three-fourths capacity; and the remainder, in rooms used less than one-half capacity.

Of course the difficulties encountered in program-making seldom permit using a building to full capacity. Indeed, a principal may consider himself an exception if he can arrange a program of classes so that an 80 per cent use of his building's capacity is attained. This is particularly true of the high school which offers many elective subjects. Capacity use or near-capacity use is, however, the ideal to keep in mind. School officials must remember the waste of space and money which results when a part of the school plant stands idle.

The discussion of this chapter, as well as that of previous chapters, has demonstrated that in planning a school building there should be a close coöperation between the educational department and the architectural department. If a waste of space is to be avoided, the use to be made of the various rooms in a school must be carefully planned before the construction of the building begins. The erection of a school building is too often considered merely an architectural or a business problem; obviously, it is largely an educational problem. In a large building — particularly a high-school or college building — all recitation rooms should not be the same size. Moreover, the special rooms, such as museums, studios, auditoriums, gymnasiums, shops, and laboratories, should be planned to allow their being used by the regular academic classes when they are not being used by the classes in special subjects.

Use of special rooms. School-building surveys have demonstrated that special rooms are used a much smaller percentage of full time than the regular recitation rooms. In one school building, for instance, the commodious and palatial auditorium is used only one or two periods a week; in another, the manual-training shops and the domestic-science rooms are used only two, three, or four periods a day; in still another, the physics laboratory is used but one, two, or three periods a day. The waste due to idleness of such rooms is colossal. The next paragraphs give in brief a few things that have been done in an attempt to attain a greater and more continuous use of special rooms.

The recitation-study-play, duplicate, or platoon schools claim to be making more use of the school plant than other types of school organization. The most characteristic feature of these plans of school organization is their attempt to make *complete* use of the school plant, particularly of the special rooms. In such schools the gymnasiums, the libraries, the auditoriums, the museums, the shops, the laboratories, the playgrounds, and the studios are in use every period. In the recitation-study-play plan of school organization, while one group of the school is engaged in recitation activities, another group will be engaged in study, and a third division will be engaged in play activities. These special types of school organization are being used especially in the elementary schools.

There are a number of other ways in which special rooms may be made to give greater service. Some of these are placing arms on some of the chairs in the auditorium so that it may be used for recitation purposes; designing the stage of the auditorium to provide for a gymnasium floor; using the lunch room for a study hall; and constructing laboratories, particularly in the smaller schools, which can be used for recitations in subjects such as English and history.

In providing for subjects that require special equipment, such as manual training, home economics, commerce, music, and art, an attempt should be made to have a sufficient number of pupils in the schools in which these subjects are taught to make use of the equipment during all hours of the school day. For example, in a city that has two high schools, instead of offering commercial work in both high schools, it might be feasible to offer it in only one high school. Such provision would perhaps enable the school to offer a richer curriculum — and that more economically.

Community Use of School Buildings

There is a rapidly growing tendency to make education more than a matter of mere textbook learning. Everywhere attempts are being made to correlate the work of the school with the life of the community and to make the school a community center. Everywhere it is being made possible for those organizations which are interested in the welfare of the community to use the school building. The laws of most states specifically prescribe that school buildings shall be open to the use of community organizations. Moreover, the courts of many states have decreed that such use is legitimate. The supreme court of Rhode Island has handed down the following decision, which well states the philosophy upon which the wider use of school buildings is based:[1]

> Our school system, with all the intellectual and material means for instruction provided by it, was designed to promote public education, and any use of school property tending to this end which does not interfere with the regular schools may be permitted by the trustees of a school district as within the spirit of their towns.

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[1] Appeal of John W. Barnes, 6 R.I. 591.

The courts of a few states, on the other hand, have taken the view that school officials may not legitimately grant the use of school property for other than strictly school purposes. A decision of the supreme court of Kansas may be cited as an example of such decisions:[1]

> May the majority of the taxpayers and electors in a school district, for other than school purposes, use or permit the use of the schoolhouse built with funds raised by taxation? . . . We are fully aware of the fact that all over the state the school house is, by general consent, or at least without active opposition, used for a variety of purposes other than the holding of public schools. Sabbath schools of separate religious denominations, church assemblies, sometimes political meetings, social gatherings, etc. are held there. Now none of these can be strictly considered among the purposes for which a public building can be erected, or taxation employed. . . . The argument is a short one. Taxation is invoked to raise funds to erect the building; but taxation is illegitimate to provide for any private purpose. Taxation will not allow to build a place for a religious system, a political system, or a social club. What cannot be done directly cannot be done indirectly. . . nor is it an answer to say that its use for school purposes is not interfered with and that the use for other purposes work little, perhaps no, immediate perceptible injury to the building and results in immediate pecuniary benefit. The extent of the injury or benefit is something into which the courts will not inquire. The character of the use is the only legitimate question.

Regarding fees and rentals for the use of school buildings, various policies are in effect. Whether a fee or rental should be charged should be determined by the condition of the finances of the school system and by the character of use of the plant. In practice, small school systems do not charge a fee or a rental as frequently as do large systems. Three policies among the smaller communities are noted. These are to give free use of buildings, to charge a fee for janitor services only, or to charge a fee sufficient to cover the cost of janitor services and of heat and light as well.

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[1] Spencer *v.* Joint School District, 15 Kan. 259.

Practically all city school systems charge a fee sufficient to cover the expenses of heat, light, and janitor service; this is particularly true of the larger city systems. Whether a charge shall be made is frequently determined by the use to be made of the building; for example, Toledo, Ohio, grants free use of school buildings to the Boy Scouts and to parent-teacher associations, but other organizations must pay a nominal fee. In Dayton, Ohio, community welfare associations pay only a $2 janitorial fee, but other organizations pay a higher fee. Flat rates and graduated fees are being used in various communities. When graduated fees are charged, such fees are usually based on the size of the part of the building in use and the length of time which it is used. The Cincinnati schedule of fees is reproduced herewith as typical of schedules of graduated fees:

Use of building (one room) heated by stove or furnace	$2.50
Use of one room heated by steam or hot water	5.00
Each additional room	.50
Use of gymnasium (additional)	2.00
Auditoriums	
Seating less than 500	$2.00
Seating 500 to 1000	5.00
Seating 1000 to 1500	10.00
Seating 1500 to 2000	15.00

Rules and regulations. Every board of education should formulate a set of rules and regulations governing the use of school property by community organizations. Moreover, these rules and regulations should be *written.* Such give greater assurance that all organizations will be treated alike. When such rules and regulations do not exist, school officials must decide each request entirely on its merits; in making such decisions, much time is consumed, and community friction is frequently engendered. Even when guided by carefully formulated rules and regulations, school officials are sometimes criticized for being partial and high-handed. Without rules and regulations, they risk such condemnation to a much greater degree. Even the smallest school system should have a list of simple rules and regulations governing this matter. Because of their suggestiveness we are reproducing herewith the rules and regulations governing the community use of school buildings in Minneapolis:

1. *Application* for use of buildings or grounds must be signed by three responsible citizens of Minneapolis, and must be approved by the Principal of the school and by the Superintendent of Schools. Such application must be in the office of the Board of Education at least three days before the date requested.

2. *Permit* granting use of building or grounds as requested in application will be sent to the person who is to have charge of the meeting. The school plant will not be opened for use except upon presentation of an official permit at the building to the custodian.

3. *Character of use.* School buildings or grounds may be used for other than school purposes under the rules of the Board of Education. Permits may be granted, under special rules of the Board, for political meetings. No entertainment partaking of the nature of a carnival, county fair, or bazaar is permitted in the public schools, nor any entertainment at which prizes are granted.

4. *Attendance requirements. a.* No application for the use of any part of a building, except swimming pool, will be approved for an attendance of less than twenty-five persons for high schools, and twenty for elementary schools. In case of blanket application, permit may be canceled if the attendance falls below twenty for high schools and fifteen for elementary schools, provided that certain afternoon study groups, welfare organizations, and school clubs may be permitted to use a room with not less than ten in attendance.

b. No application for the use of any swimming pool will be approved for an attendance of less than twenty. In case of blanket application, the permit may be canceled when attendance falls below fifteen.

5. *Free use.* If meeting is free and public and for education, building may be used without charge, including heat, light, and janitorial service, except when such use is of a political or sectarian character.

6. *Rental charges for meetings and entertainments. a.* If admission is charged, the proceeds of which are not to be used for school purposes, charge shall be made by the Board of Education for use of the buildings in accordance with the following schedule (see also section 10):

(1) $7.50 for any elementary-school gymnasium, corridor, or classroom. Rehearsal, one evening or afternoon, $3 extra.

(2) $20 for any high-school gymnasium or music room; $10 for any high-school classroom. Rehearsal, one evening or afternoon, $5 extra.

(3) High-school auditorium rentals per evening (for political meetings, see special rules; see also section 10):

Central	$60	Marshall	$50	Jordan	$50
North	60	Washburn . . .	50	Bryant	50
South	50	Edison	50	Lincoln	50
East	40	Roosevelt . . .	50	Franklin	25
West	40	Jefferson	50		

Rehearsal, one evening, $10 extra; one afternoon, $5 extra.

(4) $10 for any high or junior-high-school auditorium for an afternoon entertainment.

b. If no admission is charged, rentals shall be:

(1) $5 for any elementary-school gymnasium, corridor, or classroom.

(2) $10 for any high-school gymnasium or music room; $5 for any high-school classroom.

(3) For high-school auditoriums for one evening's use, one half the respective amounts stated in schedule above. Rehearsal, one evening, $10 extra.

(4) $5 for any high or junior-high-school auditorium for an afternoon entertainment.

c. An additional charge may be made by each school for use of scenery, piano, stereopticon, moving-picture machine, spotlight, and other property in charge of the school. Arrangement for use of this property and charge therefor must be made with the principals.

d. Payment of rental shall be made by applicant to the Finance Department, Board of Education, 305 City Hall, before permit is granted, at least three days in advance of meeting. Buildings will not be opened except upon presentation to the custodian of receipt issued by the Finance Department.

7. *Use of gymnasiums and swimming pools for class work. a.* Gymnasiums and swimming pools may be used by organizations for athletic and class purposes. Groups must have a leader or instructor in charge who is at least 21 years of age, whose application is approved by the Department of Physical Education, and whose name appears on the official permit issued by the Board of Education. No leader may place a substitute in charge of his group without securing permission from the Board of Education.

b. Use of general school athletic supplies shall not be permitted under the application granting use of gymnasium. Use of apparatus is permitted only when leader is competent to instruct in its use.

c. Gymnasiums shall not be used for athletic contests except by special action of the Board of Education. Practice games between groups using the schools on blanket permits shall not be held except upon approval of the Superintendent's Office.

d. The same group of persons shall not be permitted to use a public-school gymnasium or swimming pool more than once a week.

e. No gymnasium or swimming pool may be used by any one group for a period of time longer than one hour and fifteen minutes. Fifteen-minute periods before and after the gymnasium period will be granted for use of dressing rooms and showers. This latter period may be extended to thirty minutes for swimming groups.

f. No instructor, member of gymnasium class or athletic group, or visitor to such class may go upon gymnasium floor wearing street shoes.

g. Applications for single meetings on dates already taken on blanket permits must not be approved by principals until after persons holding such blanket permits have been notified, such notification to be given at least one week in advance. Conflict in dates should be avoided when possible.

h. Free use. Gymnasiums will be granted free to organized groups under 18 years of age, which are sponsored by organizations whose purpose is social service and who have a definite budget for carrying on their work.

i. Rental charges. (1) For groups over 18 years of age, the charges shall be as follows, payments to be made in advance at the office of the Board of Education:

$2 per class period of 1¼ hours or less for any elementary-school gymnasium.

$3 per class period of 1¼ hours or less for any high or junior-high-school gymnasium.

(2) Charge for use of any swimming pool, $10 per class period of 1¼ hours or less, to be paid to the principal of the school before the pool is used.

8. *Age limits.* No children under 12 years of age shall be permitted to use any part of school buildings for group activities after 6 P.M., nor children under 14 after 8.45 P.M.

9. *Sunday use.* No part of any school building or ground shall be used on Sunday except in special cases and under such terms and conditions as may be approved by the Board of Education.

10. *Vacation use.* No part of any school building shall be used on Saturday afternoon or evening, during vacation periods, or when building is closed for more than twenty-four hours, except with approval of Superintendent. If buildings are used by outside organizations with special permission, a charge of $7.50 for elementary and $20 for high schools shall be made in all cases and in addition to the regular charge; heat, light, and janitor service included. If used by school groups with special permission for any necessary purposes, the charges shall be $3 and $5, respectively, for elementary and high schools.

11. *Reserve dates.* The principal may reserve any part of the building one evening each week for school purposes or community activities.

12. *Social dancing* on the part of elementary-school pupils shall not be permitted in school buildings. Social dancing on the part of high-school pupils may be permitted at supervised social functions. Elementary-school buildings shall not be used for social dancing unless specifically stated in the application, which shall be presented in the name of the Parent-Teacher Association of the district, and shall bear the signature of three officers of the association.

13. *Children's dancing classes.* Parent-Teacher Associations may be granted the use of elementary-school gymnasiums on Saturday mornings for children's classes in dancing, dramatic art, and music, under instructors approved by the administrative department, and supervised by mothers. A rental fee of $5 shall be charged for such use.

14. *Hours and dates.* *a.* Organizations and classes using buildings shall conform to the hours and dates specified in their applications. Changes can be made only with the consent of the Superintendent of Schools.

b. Buildings must be vacated by 11 P.M., except in special cases approved by the Superintendent of Schools.

c. Playgrounds shall not be used after 5 P.M., except under supervision of a person approved by the Department of Physical Education.

15. *Our national flag.* No flag other than the United States national colors shall be displayed at any time on the school buildings or grounds, nor within the buildings except upon special permission granted by the Superintendent.

16. *Use of tobacco.* The use of tobacco or intoxicants is prohibited at all times in the buildings or on the school grounds.

17. *Grounds.* *a.* Application for the use of playgrounds and athletic fields must be made in the same manner as for the use of a building or any part thereof. This rule applies to the use of the grounds by the school having charge of the grounds, to other schools, and to any outside organization.

b. Political gatherings. A charge of $5 shall be made for the use of any school or athletic grounds for political meetings. The applicants shall provide police supervision for such meetings.

c. There shall be no rental charge for the use of grade-school grounds except for political gatherings.

d. Rental charges for high-school grounds for purposes other than political meetings shall be as follows:

Regular Minneapolis high-school football games, $30.

All other contests and other activities at which an entrance fee is charged, 10 per cent of the gross receipts from the contest, with a minimum charge of $30.

All contests at which no entrance fee is charged, a minimum of $15, except that a public-school organization shall have free use of grounds.

e. By special permission, grade schools may use high-school grounds for regular school contests without charge.

f. Rentals shall be paid to the Finance Department and shall be kept in a separate fund for maintaining, equipping, and policing of the grounds, which fund shall at all times be under the control of the Board of Education.

g. The principals of the schools shall be responsible for the care and upkeep of the playgrounds, as of the school buildings.

h. The principals of the schools shall see that arrangements are made for efficient policing at all games.

i. During the time that admission tickets to school games are being sold at the gates of the grounds, they shall not be sold at other places.

j. Student tickets for admission to athletic contests may be sold at one place only in the school buildings, and must not be placed on sale at any place outside the school buildings.

18. *Subleasing forbidden.* No applicant may sublet any part of building named in application.

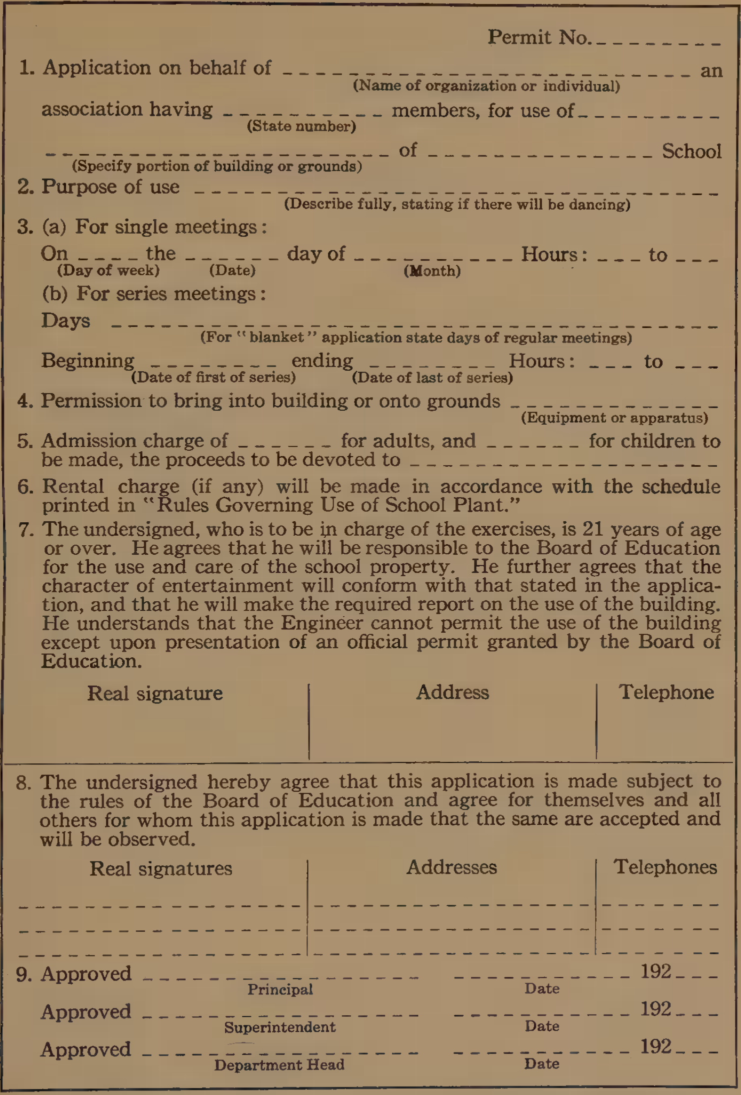
19. *Cancellation of permit.* A permit may be canceled if conduct or nonobservance of rules warrants.

Request blanks for use of school buildings. In addition to having definite rules and regulations governing the use of school property by community organizations, every school system should have a request blank which organizations desiring to use any part of the school property must fill out. In Fig. 29 is displayed a copy of the application blank used in the schools of Minneapolis, a city that has a well regulated procedure for the community use of school property.

SELECTED REFERENCES

ANDERSON, H. W. A Method for Determining the Housing Requirements of Junior-High-School Programs, University of Iowa Studies, Vol. III, No. 3 (April 1, 1926). 56 pp.

A study of the efficiency of use of 27 junior-high-school buildings.



Permit No.__________

1. Application on behalf of ______________________________ an
(Name of organization or individual)
association having ____________ members, for use of __________
(State number)
__________________________ of ________________ School
(Specify portion of building or grounds)

2. Purpose of use ______________________________________
(Describe fully, stating if there will be dancing)

3. (a) For single meetings:
On _____ the _______ day of ____________ Hours: ____ to ____
(Day of week) (Date) (Month)
(b) For series meetings:
Days ____
(For "blanket" application state days of regular meetings)
Beginning __________ ending __________ Hours: ____ to ____
(Date of first of series) (Date of last of series)

4. Permission to bring into building or onto grounds ______________
(Equipment or apparatus)

5. Admission charge of _______ for adults, and _______ for children to be made, the proceeds to be devoted to ______________________

6. Rental charge (if any) will be made in accordance with the schedule printed in "Rules Governing Use of School Plant."

7. The undersigned, who is to be in charge of the exercises, is 21 years of age or over. He agrees that he will be responsible to the Board of Education for the use and care of the school property. He further agrees that the character of entertainment will conform with that stated in the application, and that he will make the required report on the use of the building. He understands that the Engineer cannot permit the use of the building except upon presentation of an official permit granted by the Board of Education.

Real signature	Address	Telephone

8. The undersigned hereby agree that this application is made subject to the rules of the Board of Education and agree for themselves and all others for whom this application is made that the same are accepted and will be observed.

Real signatures	Addresses	Telephones
____________________	____________________	__________
____________________	____________________	__________
____________________	____________________	__________

9. Approved ____________________ ______________ 192___
Principal Date
Approved ____________________ ______________ 192___
Superintendent Date
Approved ____________________ ______________ 192___
Department Head Date

Fig. 29. Application blank for use of school building or grounds

Edwards, I. N. "The Law governing the Use of School Property for Other than School Purposes," *Elementary School Journal* (April, 1926), Vol. XXVI, pp. 585–595.

A résumé of court decisions on the use of school buildings for other than school purposes.

Engelhardt, Fred, and Steel, H. J. Efficient Use of School Buildings, *Bulletin* of the University of Minnesota (June 12, 1926), Vol. XXIX. 16 pp.

Reports data on use of school buildings by periods in the day; standards for building use; use of special rooms.

Lewis, E. E. "Using School Buildings Efficiently," *Educational Research Bulletin* of Ohio State University (January 19, 1927), Vol. VI, pp. 23–27.

Describes how a high-school building designed for 1800 pupils is able to accommodate 2872 pupils, if used to 80 per cent of its efficiency.

Packer, P. C. *Housing of High-School Programs.* Teachers College, Columbia University, 1925. 51 pp.

Examples of how well the high-school buildings of today house their programs and suggestions looking toward the elimination of waste space.

Peterson, L. H., and Hart, F. W. "Economies in School-Housing," *American School Board Journal* (July, 1926), Vol. LXXIII, pp. 42, 153.

Shows a large waste in the use of blackboard space in 294 recitation rooms of junior-high-school and senior-high-school buildings.

Sears, J. B. "Some Data on the Cost of School-Housing," *American School Board Journal* (June, 1924), Vol. LXVIII, pp. 42–44.

Presents data on the relation between the size of classes and the number of sittings provided in the recitation rooms of one high-school building.

Strayer, G. D., and Engelhardt, N. L. *School-Building Problems*, pp. 51–97. Teachers College, Columbia University, 1927.

Includes many illustrative data on the making of studies of the utilization of school buildings.

Wirt, W. A. "Utilization of the School Plant," Addresses and Proceedings of the National Education Association (1912), pp. 492–497.

Describes how Gary, Indiana, makes a maximum use of her school plant.

CHAPTER XII

MAINTENANCE OF THE SCHOOL PLANT

Maintenance Defined

In the nomenclature of school financial accounting and business administration of schools, "maintenance" refers to the keeping of the school plant (that is, the site, building, and equipment) at its original state of repair as fully as possible. Expenditures for repairs or for replacements are termed *maintenance* charges. Common types of maintenance charges for school sites are those for the regrading and resodding of lawns and playgrounds, and for the repair and replacement of drains, roads, walks, and fences. Common types of maintenance charges for buildings and equipment are those for the repair and replacement of laboratory and shop equipment, desks, chairs, tables, blackboards, fire escapes, doors, window shades, window glass, heating and ventilating apparatus, electrical equipment, playground apparatus, roofs, floors, walls, plumbing, and paint. Obviously the foregoing list of things which must be kept in repair is not complete. To mention all such would require a list of hundreds of items.

Depreciation of the School Plant

Under the most favorable conditions, a school plant cannot be expected to remain in its pristine condition of repair. From the day on which a school building is accepted from the contractor, depreciation of the building begins; indeed, depreciation begins before the building is completed. Depreciation of school equipment also always moves apace. Likewise the school site, particularly the improvements upon it, can hardly be expected to remain in the original state of repair. Someone has said that "everything is on an irresistible march to the junk heap."

Causes of depreciation. Four factors always operate to cause depreciation in any kind of plant, whether a school, an office, a theater, a hotel, or a factory.

1. The first and probably the greatest cause of depreciation is the *wear and tear* of usage. Dozens of little feet and of big feet tread the floors of the school building daily; moreover, the same number of hands make constant use of various parts of the plant. Even though they are careful, the users of the plant are responsible for much wear and tear of the plant; they scratch, besmear, or injure in some manner the floors, walls, and furniture; in fact, any part of the plant which is used is marked by this usage. We are not bewailing the fact; we are merely stating the fact. A school plant is made *to use.*

2. A second cause of depreciation is physical *decay* or *decrepitude.* Everything is a result of the handiwork of nature, and although nature builds well, she does not produce anything which will last forever. What nature gives, she takes away. Decay goes on constantly in everything. Whether the school plant is used or not, its decay moves apace. In fact, some parts of the plant deteriorate as rapidly when idle as when in use. The trenchant slogan of the paint-manufacturers, "Save the surface, and you save all," is not entirely true; some decay goes on in spite of all precautions that can be taken. All that man can do is to retard the inevitable.

3. *Obsolescence* is a third cause of depreciation. Obsolescence means a growing out of usage or of up-to-dateness.

Improvements are being constantly made in everything. During the last twenty-five years there has been a complete transformation in the style of school architecture and equipment. Most school buildings that were erected twenty-five years ago are now out of date. The same is true of most items of equipment. Progress is a law of life; the school plant is no exception to the rule.

4. A fourth cause of depreciation is *accidents*. Accidents to the school plant may be caused by negligence, by structural defects, or by the elements. Among the elements that occasionally cause damage to the school plant are fire, lightning, temperature, water, and wind.

Rate of depreciation. The rate of depreciation of a school plant varies. In the first place, it varies with the type of materials and the quality of workmanship. Wood buildings have much faster rates of depreciation than buildings constructed entirely or largely of granite, limestone, brick, tile, concrete, or steel. Moreover, a building erected by skilled and careful workmen has a slower rate of depreciation than a building erected by unskilled and careless workmen.

The rate of depreciation varies, in the second place, with various parts of the plant. Some parts of the plant deteriorate much more rapidly than others. Among the things which deteriorate rapidly and which need frequent repair are bells, clocks, alarms, batteries, windows, boilers, paint, grounds, sash cords, wiring, door checks and stops, electric fixtures, roofs, doors and hinges, drains, locks, switchboards, blackboards, stairways, fire escapes, feed lines, and toilet bowls.[1]

The rate of depreciation varies, in the third place, with the climate. The elements are much more destructive in some climates than in others. For example, buildings located in a climate which changes frequently from one extreme of temperature to another extreme, which has frequent and high winds, which has a salt air, or which is excessively dry, deteriorate more rapidly than buildings located in more favorable climates.

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[1] Ranked in order of frequency as reported in H. M. Schwartz's *Improvement in the Maintenance of Public-School Buildings*, p. 15.

A fourth way in which depreciation varies is in the extent of use and character of use of the plant. A plant which is carefully and sparingly used deteriorates less rapidly than a plant which is used carelessly and constantly.

Importance of Proper Maintenance

In preceding paragraphs it was noted that depreciation of the school plant always continues, and that depreciation is a waste. Can anything be done by school officials to decrease the rate of depreciation? They can do two things: first, see that school property is treated with respect by all who use it; second, provide repairs and replacements as soon as needed.

Teaching respect for school property. In many schools the pupils, and sometimes even the principals, teachers, and janitors, do not have sufficient respect for school property. Many schoolrooms have desks that have been almost whittled away by pupils' knives, walls that are covered with paper wads and finger marks, floors that are besmeared with ink, and windows that are broken. Such vandalism is unfortunate for two reasons: first, it entails a large financial waste to the school district; and second, it breeds disrespect for property, particularly public property.

What can be done to inculcate in pupils a greater respect for school property? A first thing is to place the school plant in a "respectable" condition. When the walls of school buildings are clean and well decorated, when desks and other furniture are in good condition, when the floors are clean, — in brief, when plants are in such condition as to inspire respect, — pupils give respect. But one broken window, one pencil mark, one paper wad, one knife slash, one act of vandalism of any kind, tends to call forth a similar act.

If anyone is skeptical about children being able to respect school property, let him visit the high-school building of Greenfield, Ohio, a building unexcelled in beauty, so far as our acquaintance goes.[1] Although this building has been in use ten years, one fails to find one mark of disrespect on it or in it. In spite of the unexcelled respect which the children of that city accord to school property, we do not believe that the people of Greenfield would claim that their children are more "angelic" than other children. What the children of Greenfield have done, can be readily done by the children of any community. When they are given some guidance, children coöperate in keeping their environment beautiful; they are not vandals, born and bred.

Making repairs immediately. A dilapidated school plant is always an invitation to vandalism, whereas a well-maintained — a "respectable" — plant inspires respect for the plant. This is one potent argument for making repairs immediately. In the second place, repairs should be made immediately because of the financial economy which results. Only recently the writer paid a bill of $35 for repairs on his automobile — a bill which would not have been more than $10 if he had consulted an automobile mechanic a week earlier. But he procrastinated. Just as the proper upkeep and timely repair of an automobile or a dwelling house are marks of a wise owner, so the upkeep and timely repair of a school plant are marks of an efficient school administrative organization. Such slogans as "Save the surface, and you save all," "A stitch in time saves nine," and "A break in the levee may result in an inundation" are pertinent here. Still more, if repairs are delayed, instruction may be handicapped. Let repairs to the heating plant be postponed too long, and school must be dismissed for a few days while the repairs are made. When the school plant is not in a good state of repair, the efficiency of instruction is not at its highest point.

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[1] This splendid building was given to Greenfield by Edward F. McClain, a resident of Greenfield.

Discovering Needed Repairs

In order that needed repairs shall not go undiscovered, some plan for the regular and systematic inspection of the school plant should be instituted. This inspection may be made by someone from the maintenance department or by the janitors or principals. In small communities, the members of the board of education and the superintendent of schools often find it feasible or necessary to make this inspection. Unless regular and systematic inspections are provided for, many needed repairs are not discovered early, and much useless expense and inconvenience is the result.

In Rochester, New York, the annual inspection above recommended is made by three representatives of the maintenance department, each of whom is skilled in his own field of construction, housekeeping, or equipment.

Emergency repairs — that is, repairs caused by unforeseen circumstances, such as fires, acts of nature, and accidents — must, of course, always be expected, and they must be cared for as soon as the need for them arises. Major repairs, however, are usually not of an emergency character. It is the major type of repairs — repairs that can be made during the summer months and other vacations — for which timely inspection will discover need.

Since all repairs should be made, if possible, during the summer months, the chief inspection of the plant should take place each spring; for example, in February, March, or April. This early inspection enables the maintenance organization to plan for making the repairs, and permits the securing of the advice of principals, teachers, and janitors on the extent of and the type of repairs needed.

Each building, each site, and every item of equipment should be carefully inspected. Every part of the plant should be inspected from the roof of the building to the walks, fences, and playground apparatus; every room and every nook and corner should be scrutinized. Many school systems make another inspection, though it is less intensive than the spring inspection, shortly before the Christmas vacation. This mid-year inspection frequently discovers defects which if not remedied would likely cause a closing of school or other inconveniences.

For several years, the school city of Philadelphia has made the spring inspection recommended above. For each school plant, the inspector records his observations on such a form as is shown in Fig. 30. When more complete information is needed on any building, such information is recorded separately. In Philadelphia, the repairs needed for each building are divided into two classes: first, those that are *absolutely necessary*; and second, those that, although not absolutely necessary, are *desirable*. An estimate is made of the cost of making each repair, and such estimate is made whether the repair is absolutely necessary or desirable. The data for the various buildings are then placed on one large sheet, a part of which is displayed in Fig. 31. This sheet lists at its top the name of each school building, and provides space for indicating whether the repair (listed on the left-hand side of the sheet) is urgent or desirable. When filled out, the sheet is carefully perused by the officials of the building department and on the basis of this perusal a work schedule for the summer is made up. Of course the re-

SURVEY SHEET - REPAIR AND MAINTENANCE	
School	District
Inspector	Date
Stonework, Curbs, and Pointing	
Brickwork, Paving, and Pointing	
Cement Work, Floors, Paving, and Curbs	
Ironwork of Every Description	
Wire Screens of Every Description	
Outside Painting	
Flag Pole	
Glazing	
Weather Stripping	
Roofs	
Lightning Rods	
Plastering	
Inside Painting	
Hardware	
Sheet Metal, Steel Ceilings, and Ventilators	
Plumbing of Every Description	
Carpenter Work of Every Description	
Over	

INSPECTOR'S GUIDE
Each Item to be Checked after Inspection is Made
OUTSIDE WORK
Curbs
Paving Brick
Paving Cement
Pointing Brick, Terra Cotta, and Water Proofing
Pointing Stone
Iron Railings
Fire Escapes
Wood Fences
Party Walls
Building Walls
Entrance Steps
Basement Window Areas
Storm Enclosures
Entrance Doors
Outside Privies
Privy Wells
Wire Screens
Flag Poles
Outside Painting
Roofs and Rain Conductors
Chimneys above Roof
Ventilators
Trimming Trees
INSIDE WORK
Cellar Walls
Cellar Floors
Wood Floors
Cement Floors
Ceilings
Stairways
Fire Tower
Doors and Transoms
Windows and Sliding Sash
Glazing
Weather Stripping
Blackboards
Tile Work
Plastering
Hardware
House Tanks
Water Closets
Sinks
Drains
Drinking Fountains
Water Pipes
Inside Painting
Chimneys in Loft
Over

FIG. 30. Form for annual inspection of school buildings for repairs

pairs made at a given time are determined by the amount of funds available for this purpose and by the degree of urgency. The object is to make the imperative repairs first. Those less imperative are postponed until the next summer or until the condition of the budget permits their making.

District No.																																		Date
	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	Urgent	Urgent	Desirable	Urgent	Desirable	Urgent	Desirable	
Stone Curb																																		
Paving Brick																																		
Paving Cement																																		
Pointing Brick																																		
Pointing Stone																																		
Iron Railings																																		
Wood Fences																																		
Party Walls and Fences																																		
Steps - Stone																																		
Steps - Wood																																		
Storm Enclosures																																		
Cellars, Windows and Areas																																		
Entrance Doors																																		
Outside Privies																																		
Privy Wells																																		
Iron Fire Escapes																																		
Wire Screens																																		
Flag Poles																																		
Painting Outside																																		
Roofs																																		
Cellar Walls																																		
Wood Floors																																		
Cement Floors																																		
Ceilings																																		
Stairways																																		
Fire Towers																																		
Doors and Transoms																																		
Windows and Sliding Sash																																		
Glazing																																		
Weather Stripping																																		
Black Boards																																		
Hanging Cabinets																																		
Plastering																																		
Hardware																																		
Water Closets																																		
House Tank																																		
Sinks																																		
Water Pipes																																		
Drinking Fountains																																		
Painting Inside																																		
Chimneys in Loft																																		
Chimneys Above Roof																																		
Ventilators																																		
Carpenter Work																																		
Electric Work																																		
Cellar Floors																																		
Urgent																																		
Desirable																																		
Total																																		

Superintendent of Buildings

Superintendent of Schools

Inspector

Key	S	Specified
	O	Ordered
	C	Completed

FIG. 31. Chart for planning a schedule for school-building repairs

Maintenance Personnel

Use of the janitors. In most school systems the janitors find it possible to make many repairs, particularly those of minor nature. The typical janitor has some time which he can devote to this work, and often he can make minor repairs as competently as an artisan.

In the larger communities it is a common practice to hire the janitors on a yearly basis and to use them during the summer months to care for the plant and to make certain repairs. During the summer months many communities find it advantageous to organize the janitors into work gangs for the performance of certain tasks. For example, some school systems organize a painting gang, a carpentry gang, a plumbing gang, a masonry gang, or an electrical gang; over each gang a foreman is usually placed. By such a plan janitors may be hired on an annual basis and be kept profitably engaged all the time.

Special maintenance workmen. Most school systems, however, have more repair work than the janitorial corps can perform. Moreover, much of the repair work is of such a technical nature that the janitorial corps cannot competently do it. Their services must, therefore, be supplemented by special repair men.

Two plans of hiring such repair men are in use. The first of these may be called the *contract* plan, and the second, the *straight-time* plan.

Under the contract plan, a contract for the making of certain or all repairs is given to a certain individual, firm, or firms. The laws of many states specify that repair jobs amounting to more than a given sum — for example, two hundred dollars — must be contracted for on a basis of competitive bidding properly advertised. Another practice, under the contract plan, is to engage a certain individual to do all the repair work of a certain kind or kinds; for example, all the plumbing work is given to a certain individual or firm, this individual or firm doing the work as called upon; such service is frequently called "open order" service.

The contract and open-order plans are used almost universally in the smaller communities — communities which do not have sufficient repair work to justify the employment of a regular repair corps. These plans are also frequently used in the larger cities for securing certain types of repairs, particularly those of a major character, those of a complex nature, or those infrequently needed.

Under the straight-time plan, a repair personnel is employed on a full-time basis. This plan is feasible only in large communities, — that is, communities which have a sufficient amount of repair work to keep the personnel regularly employed. A community which has enough plumbing repairs to keep a plumber or plumbers regularly employed may of course hire such; the same practice should obtain for carpenters, electricians, painters, masons, or any type of specialist. The larger the community, the larger the number of repair specialists that can be feasibly employed. In the smaller communities, a "Jack-of-all-trades" is the most logical individual to hire first. Since carpentry repairs are the most common type of repairs, ability in this field should likely be emphasized. If the community is large enough to hire two straight-time repair men, a carpenter should probably be the first employee and a plumber the second.

The Repair Shop

Many of the larger cities—for example, those of more than 100,000 population—maintain a repair shop in which repairs are made that cannot be feasibly made in the school building. Moreover, in this shop much furniture and equipment are often constructed — and constructed, it is frequently claimed, at a large saving. By manufacturing such in their own shops, many cities claim that they secure many articles of furniture at a cost of one-fourth to one-third cheaper than ready-made articles.

Often an old school building which is no longer suitable for classroom purposes may be advantageously transformed into a repair shop. The advantages of having the shop located as near the center of the city and as close to a street-car line as possible will be obvious to school administrators.

In Rochester, New York, such a shop has been established in an old school building. In this shop the school furniture and mechanical equipment are repaired and reconditioned and all kinds of repair tools and materials are kept. The men in charge of the shop are engineer-janitors with special training for this particular work. Most of the men working under them are substitute janitors who are ready at any time to go into the schools and to operate the plants in the absence of the regular janitors. In addition to being janitors, most of these men are skilled mechanics, having been journeymen in the various trades before coming into the employment of the school system. The Rochester shop plays, therefore, a dual rôle. In the first place, it acts as a source for the janitorial supply men — men who can be used at any time to meet emergencies; and, in the second place, when the men are not doing relief duty in a janitorial capacity, they are making repairs either in the repair shop or in one of the school buildings.

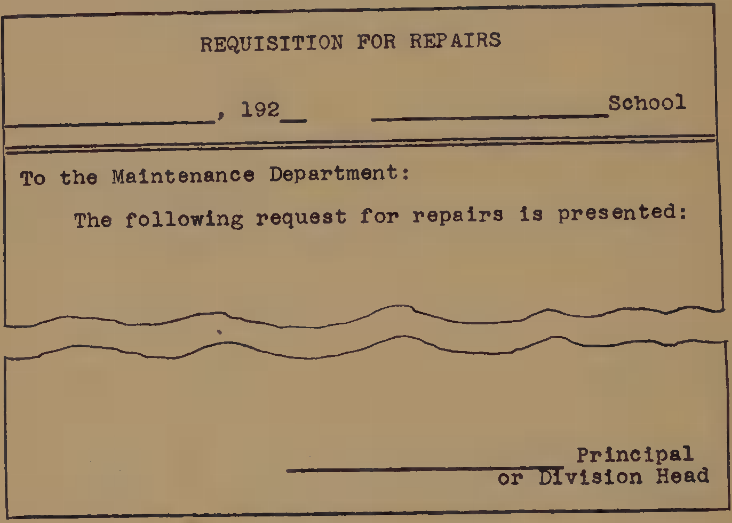
Transportation of the Repair Force and Materials

In cities in which the board of education maintains its own repair force, and particularly in instances in which the repair force is large, some means of transporting the force, as well as materials and tools, should be devised. Street cars are often the best means of transportation; occasionally, however, street-car transportation is not feasible. In such instances an automobile truck may be provided. Attempts should be made to plan the routes of the members of the repair force and their materials and tools so that as much distance and time as possible will be saved.

Ordering Repairs

For ordering repairs of an emergency nature, the following procedure may be used. The school principal or other division head notifies the maintenance department, if the school system is large enough to have a maintenance department, of the repairs needed. This notification may be made either by telephone or by written notice — preferably by the latter method; telephone orders should be later placed in writing so that they may become a matter of record. In Fig. 32 a form is exhibited which may be used by the principal or division head in making a requisition for repairs. This order should be made in duplicate, one copy of which should be retained by the person making the order, and the other sent to the head of the maintenance department or other appropriate official. The request should be made concisely and completely, stating quantities, sizes, room numbers or names, location, and sufficient information to enable the making of the investigation for the authorization of the repairs and for making the repairs.

If the repairs which are requested appear to be complex and of considerable importance, the need for them should be investigated before they are approved. Whether the requisition is approved or disapproved, it is well to make out, upon receipt of the requisition from the principal or division head, a record form like that shown in Fig. 33. This form should be retained in the maintenance department, for it is a history of the repair job from the time the requisition is made to the payment of the bill. After the work has been authorized, a copy of the record card may be handed to the foreman or the person in the maintenance department who is charged with the responsibility of attending to that type of work. It should be the foreman's responsibility to keep all necessary records, such as those of the time spent by the employees and of the cost of making the repairs. It is desirable to file the repair data by buildings and to retain them permanently for future reference and study.



REQUISITION FOR REPAIRS

____________, 192__ ____________School

To the Maintenance Department:

The following request for repairs is presented:

____________ Principal
or Division Head

FIG. 32. Suggestive blank to be used by the principal or division head in making a requisition for repairs

The importance of keeping adequate records of all transactions in the maintenance department should be emphasized.[1] The expenditures on the various buildings should always be recorded; moreover, there should be a history of each repair, including such data as those provided for in Fig. 33. The purposes of such data are to indicate the purposes for which money has been expended and to provide a basis for statistics — statistics which are helpful in making budgets for similar work in the future, in evaluating materials and methods, and in making all manner of comparisons and studies.

CONTRACTOR OR WORKMAN ________________________________

SCHOOL ________________________________

How Reported	By whom Reported	Date Reported	Date Ordered	Date Completed	Estimated Cost	Actual Cost

REQUISITION	ORDER NO.

REMARKS:

FIG. 33. Permanent record of each repair job; also the order to foremen to make the repairs specified

Inspection of Completed Repairs

The necessity for an inspection of repairs, particularly those which are made by outside firms working on a contract or a per hour basis, will be obvious to school administrators. There should be a check, in the first place, on the amount of time given to the job; moreover, the efficiency with which the repairs are made should be inspected. Too often this inspection is not given. Often the firm turns in its bill, and the bill is paid without any inspection of the work or without any questions being asked; such procedure frequently results in waste, because some workmen are dishonest, some are inefficient, and some are both dishonest and inefficient.

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[1] A complete set of maintenance forms may be found in H. M. Schwartz's *Improvement in the Maintenance of Public-School Buildings*, pp. 68–74.

The inspection recommended above may often be given by the principal or the janitor. Time records of employees can always be reported by the principal or the janitor, and in many types of repairs their judgment on the quality of the repair work is sufficient. On many types of repairs, however, particularly those of a complex and major nature, someone from the maintenance department who is an expert in the field in which the repairs are made should make an inspection before the work is approved and before pay is allowed.

When to abandon a School Building

No part of the school plant can be expected to last forever. Even though repairs are promptly and carefully made, they cannot keep the building entirely up to date. A time eventually comes when the question arises as to whether the school building should be abandoned or repaired so that it can be used a year or more longer. In answering this question educational utility should be the determining factor. To injure the health and to handicap the progress of pupils by using a school building that is not modern can never be condoned. In their 1000-point score card for elementary school buildings, Strayer and Engelhardt say that a building which scores less than 500 is invariably so poor that it is a waste of money to attempt to repair it, and that such a building should be abandoned at the earliest possible moment. J. C. Almack[1] suggests that the following principles be kept in mind in passing judgment on whether a school building should be abandoned:

1. A building should be abandoned at once when it is unsafe, or when the health and morals of the children are seriously threatened by its continued occupancy.
2. It should be abandoned when the maintenance and added cost of operation are sufficient to offset maintenance and interest charges on a new building of equal capacity and utility.
3. It should be abandoned when it is inconvenient from the point of view of accessibility, as when the residence section has moved away.
4. It should be abandoned when manifestly unsuited to modern school needs and too far depreciated physically to warrant alteration and additions.

When a school building has been abandoned, it should, as a rule, be disposed of as soon as possible. An abandoned building is always a temptation to vandalism. Moreover, it tends to become a community eyesore. Still more, it frequently happens that abandoned buildings are put again into use; for example, it sometimes happens that classes for mentally defective, crippled, and other types of atypical children are placed in such buildings. Why such buildings should be good enough for atypical children and not be suitable for normal children is difficult to comprehend.

SELECTED REFERENCES

ALMACK, J. C. "The Maintenance of School Buildings," *American School Board Journal* (July, 1925), Vol. LXXI, pp. 45–47, 143.

Discusses causes of and rates of deterioration of school buildings; methods of maintenance are also described.

EMERICK, FRANK. "Protecting School Property," *American School Board Journal* (February, 1925), Vol. LXX, pp. 65, 120, 123.

Discusses the advantages of fencing in school property.

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[1] "The Maintenance of School Buildings," *American School Board Journal* (July, 1925), Vol. LXXI, pp. 143–144.

Harwood, S. G. "Repairs to School Buildings," *American School Board Journal* (March, 1920), Vol. LX, pp. 35–36.

Describes the plan of repairing school buildings in Duluth, Minnesota.

Kinkade, Arthur. "Miscellaneous Repairs and Replacements," *American School Board Journal* (July, 1917), Vol. LV, pp. 23–24, 85.

Emphasizes minor repairs; suggests a repairs schedule.

Laughlin, E. V. "Planning the Summer's Repairs," *American School Board Journal* (May, 1925), Vol. LXX, pp. 36, 135; (May, 1926), Vol. LXXII, pp. 55–56, 141.

The first article discusses the time of determining to make and of making repairs, and lists the things to consider in passing judgment upon the nature and the extent of the repairs to make; the second article discusses the personnel of the maintenance department.

Ramsey, H. E. "School-Building Maintenance," *American School Board Journal* (January, 1926), Vol. LXXII, pp. 88, 168; (February, 1926), pp. 51–52, 137; (April, 1926), pp. 55–56, 141; (May, 1926), pp. 108, 111.

The first article discusses the importance of school-building maintenance; the second discusses, under fifteen general headings, the items to be maintained; the third discusses the organization and personnel of the maintenance department; and the fourth discusses maintenance accounting.

Riesbeck, E. W. "Summer Care of School Heating and Ventilating Plant," *American School Board Journal* (July, 1926), Vol. LXXIII, pp. 65–66, 170.

Discusses the importance of placing the school heating and ventilating plant in good repair during the summer months.

Schwartz, H. M. *Improvement in the Maintenance of Public-School Buildings*. Teachers College, Columbia University, 1926. 74 pp.

Shows the frequency and relative importance of the several types of repairs and the relationship existing between several factors and repairs; suggests several forms.

Scott, F. A. "An Experience in Maintenance," *American School Board Journal* (July, 1927), Vol. LXXV, pp. 50, 145.

Describes an economy that resulted to a small city from having a special maintenance personnel.

Waring, R. G. "The Maintenance and Reconditioning of School Equipment," *American School Board Journal* (July, 1926), Vol. LXXIII, pp. 69–70, 173.

Describes a method of reconditioning school desks and tables.

CHAPTER XIII

THE SCHOOL JANITOR

Importance of the Janitor's Position

In recent efforts to improve the schools, the janitor's position has been almost entirely neglected. In no sense has the development of the janitorship kept pace with the development of other aspects of the schools. The quality of school buildings and school equipment has improved by leaps and bounds; likewise the qualifications of teachers and of administrative and supervisory officers have increased rapidly. The janitor, however, has been permitted to maintain his original and lowly status. In many communities, even in 1928, the janitor's "job" is given to a pauper, a "politician," or the lowest bidder.

A professionalization of this position is sorely needed. There is no legitimate reason why the school janitorship should not assume some of the characteristics of a profession. Fortunately evidence exists which shows that professionalization of the janitorship is taking place. When it is observed what certain cities, such as Minneapolis and St. Louis, have accomplished in raising the standard of janitorial service, the situation seems not so hopeless. What Minneapolis, St. Louis, and other cities have achieved is possible in all school systems. Following are reasons for professionalizing this position:

Care of valuable property. School buildings and equipment today cost a large sum of money. Many school buildings cost hundreds of thousands or even millions of dollars. Moreover, most buildings utilize valuable equipment, and much of this equipment requires technical knowledge for its proper manipulation and care. Unless the janitor has the technical knowledge that is requisite, equipment that cost thousands of dollars may be damaged to an irreparable extent.

Still more, the school plant of today is used much more widely than was its predecessor. It has come to be a community center — in brief, a place in which all kinds of meetings for the betterment of the community are held. The school janitor is now more than a servant of the school system; he is a servant of the whole community.

Opportunity to economize in supplies. Most school buildings use several hundred or several thousand dollars' worth of operating supplies annually. By "operating supplies" is meant such materials as fuel, water, electric current, and sweeping compounds. In a large school building an inefficient janitor wastes several hundred dollars' worth of operating supplies annually, whereas an efficient janitor saves that much each year.

Responsibility for setting housekeeping standards. An efficient janitor makes sure that his building is spick and span. He believes that "cleanliness is next to godliness." Such things as marks on the walls, on the floors, or on the furniture disturb him greatly. Waste paper, dirt, or litter in the building or on the premises is a challenge to his pride. There should be such reactions on the part of the janitor, for pupils will then catch the spirit of cleanliness and orderliness and coöperate with the janitor in maintaining a neat-looking building. Still more, it is reasonable to suppose that this attitude of pupils will carry over into after-school years. A dirty building, on the contrary, demoralizes the development of good habits.

Relation to the health and safety of pupils and teachers. With the exception of the principal, probably no school employee has more to do with the maintenance of a high standard of health among pupils, teachers, and other school employees than has the janitor. For example, he is responsible for keeping the building at a properly uniform temperature; he regulates the ventilation of the building; he sees that the building is clean; he is in charge of the water supply of the school; and he is chiefly responsible for the removal of fire dangers and other hazards.

Moral and educational influence. In many schools the janitor has, or at least he takes, a larger opportunity for getting acquainted with the boys and for influencing them in the development of proper habits than do even the principal and the teachers. Usually he associates with the boys at noon, in recess periods, and before and after school hours. In confidential matters the boys often go to him for advice. It is essential, therefore, that the janitor be a person of irreproachable character, have more than an ordinary education, and possess a considerable degree of common sense.

Most janitors are chosen from the local community in which they have lived for many years. They often wield a great deal of influence, "political," social, and otherwise. Occasionally, despite the incongruity of such a situation, their opposition to a teacher, a principal, or the superintendent of schools results in the dismissal of those persons. What the janitors say about the schools is accepted by many people as law and gospel. Therefore whatever information they bring to teachers and principals concerning opinions of the school held by pupils and parents is usually worth consideration.

Methods of Selection

It is important that proper bases for the selection of janitors be fixed. Unless such bases are established, the janitorial service will suffer; moreover, friction often results when an incompetent person has to be dismissed. It is easier to hire efficient employees than it is to "fire" inefficient ones. Entrance to the janitorship should be protected with some of the circumspection shown in selecting teachers.

Archaic methods are still being used in the selection of janitors. They are now chosen somewhat as teachers were one hundred or two hundred years ago. In a questionnaire study[1] which included 1085 replies from superintendents of schools in cities of more than twenty-five hundred population, 796 superintendents stated that their school systems used neither the civil-service nor a merit basis in selecting janitors; 213 replied that they used the civil-service method. According to the study in question, therefore, almost three fourths of the school systems of the American cities select their janitors on a trust-to-chance basis.

Definite standards should be established for entrance into janitorial service. The civil-service examination is frequently used to establish and maintain such standards. If the examinations are well designed and carefully graded, an efficient janitorial force may be secured by this method. School officials should have the responsibility of designing and grading such examinations. Laws, such as some states have, permitting a civil-service commission to set the same examination for janitors of all public buildings and to grade the examination papers, are not desirable. Civil-service laws that make it impossible or difficult for a board of education to dispense with the services of inefficient janitors are also undesirable. The janitorship of a school building is probably the most responsible of any janitorship; moreover, the functions are, in many regards, different from those of other janitorships.

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[1] J. A. Garber, The School Janitor, *United States Bureau of Education Bulletin No. 24* (1922), p. 7.

A civil-service examination should measure both the general and the special knowledge of the candidate, and it should test his ability to *apply* that knowledge. Such matters as the personality of the candidate, his character, his common sense, his school record, and his practical experience should be given considerable weight. A written examination, of course, cannot cover such items; personal interviews and other sources must supply that information.

According to available facts, Minneapolis has developed her janitorial service to as high a point of efficiency as any American city. Before a person may become a school janitor in that city, he must go through a period of apprenticeship under a skilled janitor and must pass an examination. Something about the rigidity of the training and of the examination in that city may be observed from the fact that only 30 per cent of those who take the training and the examination successfully pass them. Through this training and this winnowing Minneapolis has secured efficiency in janitorial service. Sections 1 and 2 of Article XII, given in *Rules and Regulations for Janitorial Service in the Minneapolis Public Schools*, are presented here. These sections concern the qualifications for janitors, and they set up almost an ideal.

SECTION 1. GENERAL QUALIFICATIONS

No person shall be eligible for appointment on the janitorial-engineering force of the Minneapolis Public Schools unless he or she

a. Shall be able-bodied and of good character.

b. Shall be able to read, write, and speak the English language.

c. Shall be clean and neat in appearance.

d. Shall not be addicted to the use of intoxicating liquors or tobacco.

e. Shall be qualified to perform in a reasonably proficient manner the duties of the position he or she may be employed to fill.

f. Shall not be under the age of twenty-one years nor over the age of forty-five years.

g. Shall be a citizen of the United States and a resident of Minneapolis.

h. Shall agree to devote his or her entire time within the hours of his or her employment to the discharge of the duties assigned to him or her.

SECTION 2. SPECIAL QUALIFICATIONS

All male applicants for positions in the engineering division of the janitorial-engineering service must possess the following qualifications:

a. Must have sufficient knowledge of and experience in the use, operating, and care of the mechanical equipment used for the heating, ventilating, lighting, and operation of a school building to insure the Board of Education against damage to school property arising from the use or misuse by him of such mechanical equipment.

b. Must hold either a chief engineer's license, a first-class engineer's license, a second-class engineer's license, or a special engineer's license for handling steam boilers and engines, in accordance with the requirements of the position held and as determined by the rules of the State Boiler Inspector's Department.

c. Must be reasonably proficient in the use of fuel and of simple mechanical tools.

Janitors should be recommended for appointment by the superintendent of schools or by some other appropriate member of the school administrative staff, such as the superintendent of buildings and grounds, the business manager, or the supervisor of janitors. Such persons usually know more about the comparative qualifications of the several candidates for the janitorship than do members of the board of education. At present, according to Garber's study,[1] a large number of janitors are selected by the board of education or by a committee of it without consulting the board's professional experts; unquestionably this practice of boards of education is one of the big handicaps to the service.

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[1] The School Janitor, *United States Bureau of Education Bulletin No. 24* (1922), p. 7.

Training

The training of the school janitor before and after entering service has been almost entirely neglected. The degree of training and specialization necessary for a teacher, a principal, or the superintendent of schools is probably unnecessary, yet the janitorial staff should be thoroughly competent. An individual with a "strong back and weak mind" is not recommended; neither is the common laborer, a mere mechanic, nor just a good citizen. The time should soon come when our teacher-training institutions will offer certain courses for those persons who contemplate entering the janitorial service. This recommendation is being made in spite of the fact that it will seem ludicrous to many persons. So far as is known, the State Teachers College, of Greeley, Colorado, is the only institution of collegiate grade that has offered such courses. Some cities, however,—for example, Minneapolis and St. Louis,—offer such courses as requisite to entering the service. Minneapolis is probably doing more along this line than any American city.[1]

Since the typical janitor is so poorly qualified when he enters service, steps should be taken to improve his training after he enters service. This training is essential even for the better-qualified janitor. If some of the spirit in the movement for the training of teachers could carry over to the janitorial corps, excellent results would follow.

As in the case of other persons, the best means by which a janitor may increase his proficiency is probably through reading. He will profit by reading such things as the booklet of *Rules and Regulations for Janitorial-Engineering Service*, issued by the Board of Education, Minneapolis, Minnesota, or Kenneth G. Smith's *Short Course for Janitor-Engineers*. A professional magazine for the janitorial corps is greatly needed. No other group so large as the janitorial group is without at least one periodical. There are approximately one hundred thousand school janitors in the United States, and yet no magazine is devoted exclusively to their interests. Such a periodical could make a real contribution to school progress and at the same time should be a financial success.

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[1] For a description of the Minneapolis janitorial school and of related topics, see the articles by G. F. Womrath that are listed under the Selected References at the close of this chapter.

Janitors may also be aided by the helpful supervision of the principal, the head janitor, or other members of the administrative staff. Circular letters might be sent them from time to time giving useful suggestions about their work. After these letters have been read, they should be filed by the janitors for future reference.

A janitorial school or association might be formed which would prove an excellent aid in raising the standard of work. As was said before, such a school has reached its highest development in Minneapolis. In that city janitors are required to undergo a course of training before and after they enter service. The instruction is of a practical nature and is given by specialists in the various phases of janitorial work. The following subjects are discussed:[1]

1. Personal appearance.
2. Janitors' tools and care of tools.
3. Materials used in cleaning.
4. Treating and preserving floors.
5. Maintaining and cleaning floors.
6. Cleaning and dusting walls, woodwork, and furniture.
7. Cleaning vitreous china, enameled surfaces, and metal surfaces.
8. Cleaning glass.
9. Vacation cleaning.

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[1] *Rules and Regulations for Janitorial-Engineering Service, with Supplement*. Minneapolis Board of Education.

10. Etiquette of the United States flag.
11. Janitorial-engineering employees' salary data.
12. Precautions as to the operation of heating and ventilating equipment.
13. Miscellaneous (water traps, snow shoveling, and working hours).

Subjects 1 to 9, inclusive, are presented as lectures to the students. These are illustrated by motion pictures which show methods of performing the work outlined and the use and manufacture of various necessary tools and materials. Stereopticon pictures are also used to enable the students to visualize many matters discussed in the lectures. All tools and materials used by janitors are exhibited and their respective uses demonstrated as the lectures are given. The janitors are expected to attend the school one evening each month. The organization of the janitor-engineer training school of Minneapolis is shown in Fig. 34 on page 263.

Salary

If the janitorial service is to be elevated to and maintained at a high standard, there must be a good salary schedule for the personnel. Under the present salary standards it is often difficult for the janitor to eke out an existence. Garber reports that the average salary paid to janitors in 1921 was $908.42; no doubt salaries have been increased since then. As a general proposition it may be affirmed that the higher the amount paid, the better will be the qualifications.

Of almost equal importance with the amount of salary is the basis on which it is determined. In most communities the basis for salaries is not standardized. In many communities it is left for each janitor to get as much salary as he can, and for school officials to pay as little as they can. In reports from 573 cities, Garber found the following bases being used:[1]

Bases Used	Number of Cities
Size of building	179
Number of rooms	167
Size of buildings and grounds	30
Size of building and kind of heating apparatus	28
Floor area	19
Floor area, size of grounds, and type of heating apparatus	13
Size of school	11
Size of buildings and grounds and kind of cleaning equipment	7
Floor and window area, size of grounds, and kind of heating apparatus	6
Size, character, and condition of building	3
Number of rooms and amount of floor area	3
Union wage scale	3
Size of building, number of windows, and type of heating apparatus	1
Size of building, number of teachers, number of pupils, and area of lots and walks	1
Floor area, paved area, and mechanical equipment	1
Cubic contents of building, glass area, yard, lawn, and sidewalks	1
Number of rooms, number of trees, size of grounds, and kind of heating apparatus	1
Floor area and amount of coal consumed	1
Number of rooms, lineal feet of sidewalks, and square yards of gymnasium	1
Number of rooms, number of fires kept, square feet of hall space, and size of lawn and playgrounds	1
Salary arbitrarily fixed — same for all buildings	1
No established basis	95

The salary should be determined by the amount of work done, its difficulty, and the efficiency with which it is accomplished. Consonant with this view, many communities — among them, Boston, Milwaukee, and St. Louis — have deemed it advisable to design a salary schedule for various kinds of janitorial service. In these schedules four factors

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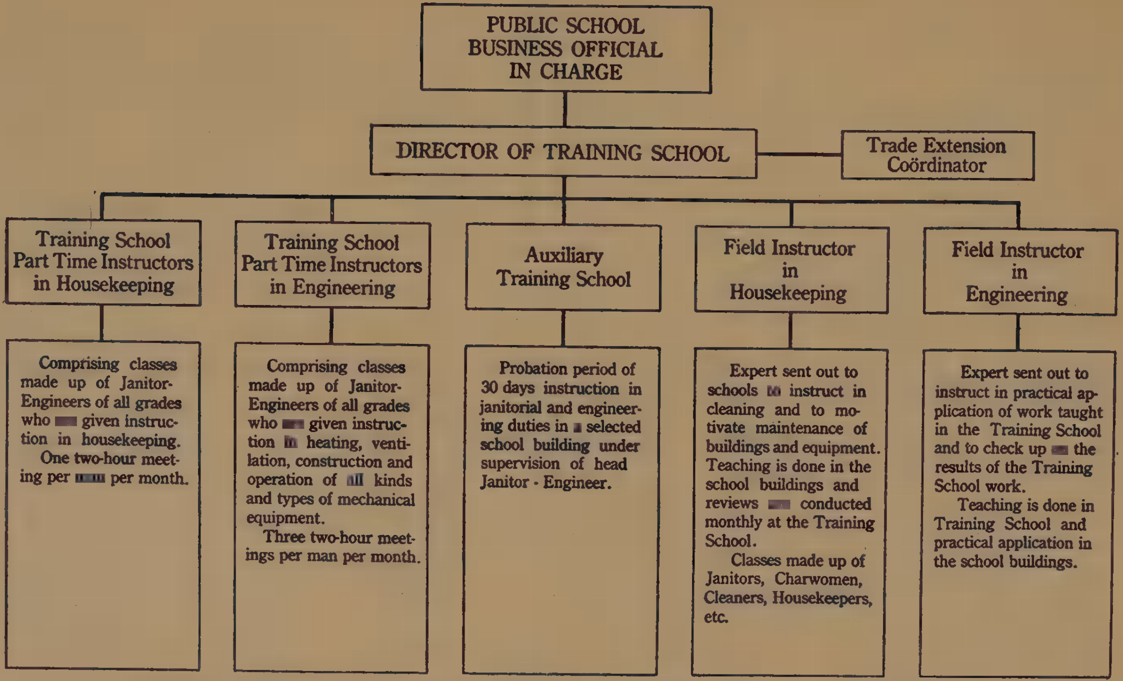
[1] The School Janitor, *United States Bureau of Education Bulletin No. 24* (1922), p. 11.



PUBLIC SCHOOL BUSINESS OFFICIAL IN CHARGE

DIRECTOR OF TRAINING SCHOOL

Trade Extension Coördinator

Training School Part Time Instructors in Housekeeping

Comprising classes made up of Janitor-Engineers of all grades who [illegible] given instruction in housekeeping.

One two-hour meeting per [illegible] per month.

Training School Part Time Instructors in Engineering

Comprising classes made up of Janitor-Engineers of all grades who [illegible] given instruction in heating, ventilation, construction and operation of all kinds and types of mechanical equipment.

Three two-hour meetings per man per month.

Auxiliary Training School

Probation period of 30 days instruction in janitorial and engineering duties in [illegible] selected school building under supervision of head Janitor - Engineer.

Field Instructor in Housekeeping

Expert sent out to schools to instruct in cleaning and to motivate maintenance of buildings and equipment. Teaching is done in the school buildings and reviews [illegible] conducted monthly at the Training School.

Classes made up of Janitors, Charwomen, Cleaners, Housekeepers, etc.

Field Instructor in Engineering

Expert sent out to instruct in practical application of work taught in the Training School and to check up [illegible] the results of the Training School work.

Teaching is done in Training School and practical application in the school buildings.

FIG. 34. Organization chart of the janitor-engineer training school of Minneapolis

are generally used in determining the compensation. These are cleaning, heating and ventilating, washing windows, and care of lawns and sidewalks. The amount of pay is usually determined in part also by the type and age of the building. An old and out-of-date building is harder to care for than a new and modern building; consequently a higher rate should be paid for its janitorial work. Copies of the janitors' salary schedules in Milwaukee and Minneapolis are given as follows:

MILWAUKEE JANITORS' SALARY SCHEDULE

Cleaning and general service. For all cleaning and general service required of janitors, they will receive compensation, excepting as otherwise specified, upon a basis of each square foot of gross area of all floors, including partition space, but excluding boiler-room space, such basis to be according to the classification adopted.

Heating and ventilating. For heating and ventilating service, janitors will receive compensation upon a basis per year for each 1000 cubic feet or major fraction thereof according to classification adopted.

NOTE. "A" denotes either high or trade schools; "B" denotes grade schools; "A-4," cleaning; "B-3, 4" indicates school is in the third class for heating and in the fourth class for cleaning. The first number denotes the heating classification and the second the cleaning classification.

HEATING

Class A-1	$ .87 per 1000 cubic feet
Class A-2	1.02 per 1000 cubic feet
Class A-3	1.12 per 1000 cubic feet
Class A-4	1.28 per 1000 cubic feet
Class A-5	2.50 per 1000 cubic feet

NOTE. Class A-1. Modern plant in large building.
Class A-2. Modern plant in average building.
Class A-3. Modern plant in building consisting of several additions and hard to operate.
Class A-4. Modern plant in medium-size building.
Class A-5. Old plant in old building with sectional or firebox boilers, stoves or furnaces in various parts of the building.

Class B-1	$1.28 per 1000 cubic feet
Class B-2	1.38 per 1000 cubic feet
Class B-3	1.65 per 1000 cubic feet
Class B-4	1.93 per 1000 cubic feet
Class B-5	2.50 per 1000 cubic feet
Class B-6	.58 per 1000 cubic feet
Class B-7	Flat rate

NOTE. Class B-1. Large, modern, three-story, fireproof building.
Class B-2. Modern two-story building.
Class B-3. Modern plant in old building.
Class B-4. Modern plant in old building with indirect heating.
Class B-5. Old buildings, hard to heat.
Class B-6. Buildings receiving heat from outside plant.
Class B-7. Small building.

CLEANING

Class A-1	$.02 per square foot
Class A-2	.02⅛ per square foot
Class A-3	.02½ per square foot
Class A-4	.03¼ per square foot

Add ¼ cent per square foot for overloaded conditions.

NOTE. Class A-1. Large modern building.
Class A-2. Average modern building.
Class A-3. Building having several types of additions.
Class A-4. Old building.

Class B-1	$.03 per square foot
Class B-2	.03¼ per square foot
Class B-3	.03½ per square foot
Class B-4	.03¾ per square foot

Add ¼ cent per square foot for overloaded conditions.

NOTE. Class B-1. Large, modern, three-story, fireproof building.
Class B-2. Modern two-story building.
Class B-3. Old building.
Class B-4. Old building in industrial district.
Class B-5. Small building.

MISCELLANEOUS RATES

Window washing. $.90 per double-window opening or its equivalent per year. Includes all inside glass and monthly cleaning as covered in rules.

Lawns. $.06 per square foot per year.

Blackboards and erasers. $4.72 per classroom per year.
Cooking rooms. $25 per room.
Manual-training rooms. $50 per room per year.
Kindergarten rooms. $30 per room per year.
Bungalows. $10 per month per room.
Evening meetings. $3 per evening.
One-half-day classes. $.15 per room per day.
Elections. $5 for one precinct and $2.50 for each additional precinct.

For the general good of the service, the committee recommended that janitors be required to meet with the supervising janitor or superintendent of plant operation at least once each month, for the purpose of discussing ways and means for the betterment of the service.

It was further recommended that principals be required to file monthly, with the time report of their schools, a statement concerning the condition of the building so far as the janitorial service is concerned.

MINNEAPOLIS JANITORS' SALARY SCHEDULE

POSITION	FIRST YEAR	SECOND YEAR	THIRD AND SUBSEQUENT YEARS
Charwoman	$80.00	$85.00	$90.00
Cleaner, or janitor	100.00	105.00	110.00
Assistant janitor-engineer-in-charge (grade schools):			
Second-class license	110.00	115.00	120.00
First-class license	115.00	120.00	125.00
Chief's license	120.00	125.00	130.00
Janitor-engineer-in-charge (high and grade schools);			
Assistant janitor-engineer-in-charge (high schools):			
Second-class license	125.00	132.50	140.00
First-class license	130.00	137.50	145.00
Chief's license	135.00	142.50	150.00
Special janitors	100.00 [1]		
Firemen:			
Six-months nonfiring period	110.00 [1]		
Six-months firing period	115.00 [1]		

[1] No increase for length of service.

Extras. (1) Every man who is required to return to his building for night social-center work will receive $2.50 per night.

(2) Janitor-Engineers-in-Charge and Assistant Janitor-Engineers will receive $7.50 extra per month after serving the Board two years.

(3) Janitor-Engineers-in-Charge will receive an additional $7.50 extra per month after serving the Board two years.

(4) All others (men and women) will receive $5 extra per month after serving the Board one year; and an additional $5 extra per month after serving the Board two years.

(5) No extra salary will be paid for licenses held until the holder is promoted to either Janitor-Engineer-in-Charge or Assistant Janitor-Engineer-in-Charge.

(6) Janitor-Engineers-in-Charge will be paid extra compensation at the rate of $4 per month for each employee in their buildings under their charge. The total per month to be based upon the total annual man-power divided by 12. (Janitor-Engineer-in-Charge not to be counted.)

Notes. (1) Men holding a higher-grade license than is required by the buildings in which they work will be paid on the basis of the required license only.

(2) Men holding a lower-grade license than is required by a building may be put in charge pending their examination for the grade of license required. These men will be paid on the basis of license they hold until they get the required grade of license. If they cannot secure the higher-grade license within six months, they will be transferred and the positions offered to those who qualify.

(3) Firemen do not receive any extra pay for length of service, for the reason that their positions are generally six-month jobs, but the Board tries to find cleaning work for the best men to do during the other six months so as to give them steady employment.

So far, two plans for paying janitors have been described: paying them a flat rate of so much per month or year and paying them on a basis of the amount of work, as Milwaukee and other cities do. Another plan for paying janitors, which is used, so far as is known, in only one American city, Cincinnati, is described herewith in brief.

In 1916 the Cincinnati Board of Education discontinued the practice of hiring janitors and engineers and instituted the policy of contracting with one individual, who was responsible for all of the janitorial service in one building. If that individual needed extra help, he hired and paid for it. Moreover, he furnished all the necessary cleaning materials, such as brushes, brooms, mops, soaps, and sweeping compounds. This plan was in operation until May 31, 1920, and according to C. W. Handman, Business Manager of the Cincinnati Public Schools, the plan was successful: "As a whole, the service was fair, the personnel high, and the whole plan was mutually satisfactory to all concerned. Men remained on the job year after year and soon came to take a personal pride in the condition of their building and the reputation it made even on educational matters."[1]

During the labor shortage of 1918 and 1919 some of the leaders of the janitors' association in Cincinnati attempted to enforce a demand for higher salaries. As a consequence, the bids of May 31, 1920, were much higher than former bids. In fact, the aggregate of the several bids jumped from $629.86 per day to $1772.70 per day, an increase of 181 per cent over the old rates.[2] Although the board of education thought that, in view of the increased cost of living, some increase in salary was justified, it considered the increase requested entirely too great. The board therefore decided to request bids for all the janitorial service of the city. Thereupon one man bid in the entire contract for $975 per day, which represented an increase of 54.8 per cent over the rate in force until 1920. This meant an annual saving of $93,180.10 when compared with what the seventy-six janitors had requested. This contract ran until May 31, 1922, when one man bid in the contract for $783 per day.

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[1] Proceedings of the Twelfth Annual Meeting of the National Association of Public School Business Officials (St. Louis, Missouri), p. 90.

[2] Ibid. pp. 91–93.

In spite of the apparently large saving, Handman holds the opinion that the plan which was in use between 1916 and 1920 was best.[1] He affirms that under the plan of giving the contract to one person the janitors are not stable enough; they are sent from building to building, and as a consequence they develop little or no pride in one building.

Inspection and Supervision of Services

In order that the janitor may improve in service and perform his duties as efficiently as possible, the janitorial work should be inspected and supervised. The size of the community should determine, of course, how this inspection and supervision can best be done. In the small communities the principal or the superintendent will often have to be responsible, but in the large school systems there should be a head janitor or janitorial inspectors for such work. In the larger systems, if such inspection and supervision is properly done, benefits beyond its cost can be shown. A definite plan of work will of course be necessary. The work should be done regularly and systematically, and certain data should be recorded at each inspection. The inspection form used in Philadelphia, together with the rules for its use, are given here: [2]

A Plan for the Inspection of School Janitors and Buildings

I. INITIAL INSPECTION

Upon every change of inspectors from one district to another, the first re-inspection of each building is to be regarded as an initial inspection. Each inspector, on his initial inspection of a building, shall report on the following items, and on every succeeding inspection shall note any changes from the original conditions:

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[1] Recently Cincinnati has readopted the plan which was in operation from 1916 to 1920.

[2] Engelhardt, Reeves, and Womrath have designed a "Score Card for Public-School Janitorial-Engineering Service," which, together with a manual of directions, is published by Teachers College, Columbia University (see entry on page 285).

A. Fire and Accident Protection

1. Character of construction ------------------------------
2. Exposures to fire from surrounding properties ------------
3. Condition of fire escapes --------------------------------
4. Outside protection
   Number of fire hydrants within 400 ft. ---------------
   Fire-alarm-box No. -------------------------------
   Distance --
   Location of key
      At the box -------------------------------------
      At the school ---------------------------------
   Nearest fire-engine house, -------- blocks

B. Sanitation

1. Normal pupil capacity of building
   Girls ---
   Boys --
2. Pupils' toilets
   Location --
   Number of seats
      Girls --
      Boys ---
   Number of urinals -------------------------------
   Lineal feet of urinals ----------------------------

	YES	NO
3. Are floors properly graded to drain?	----	----
4. Is there a floor drain and water connection for flushing?	----	----
5. Light		
Natural, adequate?	----	----
Artificial, adequate?	----	----
6. Heated?	----	----

7. Lavatories
   Number ---------------------------

Location ---------------------------- YES NO
Water supply
Hot . . . . ---- ----
Cold . . . . ---- ----

8. Number of teachers
Men ----------------------------
Women ----------------------------

9. Teachers' toilets: number of seats
Men ----------------------------
Women ----------------------------

10. Water supply of building
Adequate? . . . . ---- ----
Economically used? . . . . ---- ----

C. OPERATION OF PLANT

1. Are ceilings protected over boilers, heaters, heat pipes, smoke pipes, and gas flames, and woodwork back of, and floors under, gas ranges? . . . . ---- ----
2. Is woodwork protected where steam or heat pipes pass through floors, ceilings, partitions, etc.? . . . . ---- ----
3. Are electric wiring, lights, and other apparatus properly protected? . . . . ---- ----

II. SUBSEQUENT INSPECTIONS

To include reports on the following items:

D. FIRE AND ACCIDENT PROTECTION

1. Fire extinguishers: number
$2\frac{1}{2}$ gallon --------------------------
$1\frac{1}{4}$ gallon --------------------------
1 quart --------------------------
An extinguisher for every 100 feet of corridor space in fireproof buildings? . . . . ---- ----
An extinguisher for every $2\frac{1}{2}$ classrooms in nonfireproof buildings? . . . . ---- ----

	YES	NO
An extinguisher about electrical apparatus, engine rooms, motion-picture booths, and kitchens?	----	----
Good condition?	----	----
Charged within a year?	----	----
2. Sand buckets		
About ranges?	----	----
Marked "Fire?"	----	----
3. Fire blankets		
In each domestic-science kitchen?	----	----
Marked "For fire only?"	----	----
4. Fire hose		
Are all parts of cellar or basement reached by fire hose?	----	----
Good condition?	----	----
5. Fire-alarm gongs		
Good condition?	----	----
Used only for fire drills?	----	----
6. Waste paper		
Baled daily?	----	----
Safely stored?	----	----
Number of bales on hand? -------------		
7. Are heat and vent registers, boxes, ducts, and flues free of combustible material?	----	----
8. Are coat closets, wardrobes, or lockers free from fire hazards?	----	----
9. Are curbs, pavements, yards, inlet covers of manholes, water, gas and sewer connections in pavements, and flagpoles in safe condition?	----	----
10. Are entrances, steps, stairways, handrails for same, passages, roofs, cornices, and other projections, walls, grilles over areas, guards around entrance areaways, and moving parts of machinery in safe condition?	----	----

E. SANITATION

1. Stack stoves		
Good condition?	----	----
Fire maintained constantly?	----	----

	YES	NO
2. Wash rooms. Clean?	----	----
3. Toilet rooms. Clean?	----	----
4. Toilet paper		
Sufficient dispensers?	----	----
Adequate supply?	----	----
5. Latrines flushed according to directions?	----	----

F. CLEANING

1. Sweeping according to directions?	----	----
2. Dusting according to directions?	----	----
3. Walls cleaned according to directions?	----	----
4. Windows cleaned according to directions?	----	----
5. Are fences, doors, wainscots, walls, and any other surfaces free of dirt, pencil, and chalk marks?	----	----
6. Yards clean?	----	----
7. Sidewalks clean?	----	----
8. Window areas clean?	----	----
9. Air ducts and plenum chambers clean?	----	----
10. Wooden floors oiled?	----	----

G. OPERATION OF PLANT

1. Coal handled economically?	----	----
2. Fire bases		
Properly cleaned?	----	----
Properly operated?	----	----
3. Are general conditions in and about boilers, engines, generators, motors, fans, and pumps good?	----	----
4. Are boiler tubes, combustion chambers and other inside spaces of boilers, smoke breechings, pipes and base of smoke flues, and boiler water clean?	----	----
5. Engines and motors operated at full speed?	----	----
6. Knocks or noises about pumps, generators, or motors?	----	----

	Yes	No
7. Steam or water leaks about boilers, engines, or pumps?	----	----
8. Undue sparking about generators or motors?	----	----
9. Floors and machines free of grease and oil?	----	----
10. Windows of fresh-air rooms or ducts kept open when plant is in operation?	----	----
11. Cheesecloth filters clean?	----	----
Good condition?	----	----
12. Is surplus direct radiation cut out in mild weather or after the building has been heated to the proper temperature?	----	----
13. What part of building is overheated according to temperature charts? --------------- -------------------------------------		
Cause -----------------------------------		
14. What part of building is not sufficiently heated according to temperature charts? ------ -------------------------------------		
Cause -----------------------------------		
15. Temperature-regulating system operating?	----	----

H. General Housekeeping

1. Are covered metal containers used for rags, shavings, and other waste materials of a combustible nature?	----	----
2. Metal cabinets used for storing oils, etc.?	----	----
3. Are there any unauthorized installations or connections with gas or electric lines?	----	----
4. Are ashes stored according to directions?	----	----
5. Storage closets		
Clean?	----	----
Orderly?	----	----

Friction often develops between the janitor and the principal because of misunderstanding over who is the head of the school. The janitor frequently will not take orders from the principal; indeed, not infrequently he assumes the prerogative of *giving* orders to the principal. Rules and regulations governing janitorial service should stipulate that the janitor is under the jurisdiction of the principal, with the provision, of course, that he has the right of appeal, in controversial cases, to the superintendent of schools and the board of education.

The affirmation made above that the principal should give orders to the janitor does not mean that the janitor should be a slave to him. Only reasonable requests may be made of the janitor. He should be treated as a coworker, not as a menial or underling.

Summer Work

Whether the janitor should be hired on a twelve-month basis should be determined primarily by the size of the building over which he has custody. In a small building it might not be economical to employ the janitor during the summer months; in a large building, on the other hand, he might well be employed during that time. The practice in the city schools is to employ him for a full calendar year, while the rural and village schools generally employ him during the school year only.

Advantages in hiring a janitor on the twelve-month basis are obvious.[1] In the first place, this practice places someone in charge of the school plant all the time; it makes someone responsible for caring for the lawn and shrubbery, for seeing that the doors and windows are locked, and for protecting the plant against vandalism or injury of any sort. Moreover, the janitor who is hired on a twelve-month basis may spend the summer months in such work as cleaning the building, making certain repairs, painting, and receiving and storing supplies. During the summer months many of the larger cities organize their janitors into work gangs. For example, janitors who can paint are placed in the painting gang; those who can do carpenter work, in the carpenter gang. When such groups are organized, usually a foreman is placed in charge of each group.

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[1] It is assumed, of course, that a vacation with pay will be provided; generally a vacation of two weeks is given.

Rules and Regulations governing Work

Every school system should have a set of rules and regulations governing the work of janitors. These rules are particularly necessary in view of the lack of standardization of most janitorial forces. Since many janitors do not know what is expected of them, rules and regulations serve the purpose of prescribing in detail what they are to do. Of course the more intelligent and dependable the members of the janitorial staff, the more the rules and regulations should permit them to exercise their initiative.

The most complete set of such rules and regulations is probably that of Minneapolis. The janitorial rules of that city require a handbook of seventy-seven pages. Unfortunately the limits of this chapter do not permit the inclusion of that splendid set of rules and regulations; anyone desirous of having the set may, however, procure it at a nominal cost from the Minneapolis Board of Education. Following is a briefer set of rules suggestive of what should be included in a set of rules and regulations for school janitors:

RULES AND REGULATIONS GOVERNING SCHOOL ENGINEERS AND JANITORS IN DETROIT, MICHIGAN

1. *Responsibility*. *a*. The engineer in an intermediate or elementary school shall be responsible for the heating, ventilating, and mechanical operation of the building, also for the entire janitorial work, and shall at all times protect the school property under his charge.

b. The chief engineer of each high school shall be responsible for the heating, ventilating, and mechanical operation of the building and shall have charge of all persons rendering service on the engineering staff.

c. The chief janitor of each high school shall be responsible for the entire janitorial work of the building and shall have charge of all persons rendering service on the janitorial staff.

d. The janitor in furnace-heated or stove-heated buildings shall be responsible for the heating, ventilating, and janitorial work of the building and shall be required to protect at all times the property of the Board under his or her charge.

e. The chief engineer and chief janitor of each high school shall so arrange the schedule of working days of their staffs that one man be on duty Saturday afternoons, Sundays, and holidays, — this extra duty to be divided among their staffs.

f. The principal of each school is deemed the executive head and shall see that these rules are carried out.

2. *Hours of duty. a.* Engineers and janitors shall be at the school building between the hours of 7.30 A.M. and 4.30 P.M., and at night until the close of the night school or other activities, when night sessions are held for which extra compensation is paid, and at such other hours as are necessary to carry on properly the work under their charge.

b. Engineers and janitors may quit work at 12.30 P.M. Saturdays, except as set forth in rules 4, 12, 14.

c. Janitors are permitted to sweep halls and stairways after the afternoon recess and rooms after 3.30 P.M. or as soon thereafter as the janitor may be ready to commence work.

d. When sweeping halls, janitors must use enough sweeping compound to prevent dust from rising.

e. In case any engineer or janitor is incapacitated for duty by sickness or otherwise, notice must be sent immediately to the supervising engineer or authorized assistants, so that a substitute may be supplied, it being understood that all efforts possible shall be made to reach the officials mentioned above at their office, residence, or elsewhere.

f. In no case are the boilers to be left in charge of the janitors.

3. *Sweeping.* All rooms, halls, entries, passages, stairways, and

closets used for school purposes must be thoroughly swept each school day, sweeping compound being used wherever practical or where vacuum cleaners are not provided. Shavings, sawdust, and rubbish must be removed from the manual-training rooms each day.

4. *Dusting.* Dust all furniture, window sills, wainscoting, woodwork, handrails, etc. each school day after sweeping or the next day before 8 A.M. Dust the side walls and cornices at least once every two months or more often, if necessary.

5. *Mopping. a.* Halls, stairways, entries, kindergarten, and domestic-science rooms shall be mopped each week, and other rooms occupied for school purposes shall also be mopped at other times as ordered by the principal.

b. No water is to be flowed over or put on the floors from a hose (basement excepted).

c. Wash all desks and tables as often as once every two months.

6. *Window-cleaning.* Clean all windows at least every two months during the school year.

7. *Toilets.* Clean thoroughly all water closets and fixtures each school day and keep at all times [illegible] sufficient supply of toilet paper in the toilet rooms.

8. *Storerooms, boiler rooms, and fan rooms. a.* Keep all storerooms, boiler rooms, and fan rooms neat and clean. Whitewash the walls and paint boiler fronts and pipes in boiler and fan rooms when directed by the supervising engineer or authorized assistants.

b. At no time allow an accumulation of refuse.

9. *Sidewalks and yards. a.* Keep sidewalks clean and in good order.

b. Keep lawns in good condition, the same to be cut and raked as often as may be necessary and kept free from all rubbish.

10. *Sweepings and rubbish. a.* Collect and burn all sweepings, rubbish, and refuse.

b. The use of wooden boxes in rooms for the collection of waste paper, scraps of lunch, etc. is prohibited.

11. *Water and electricity. a.* Turn off water-supply main, except where automatic sprinklers are installed, also main electric switch, before leaving the building.

b. See that electric and gas lights are not used, except when and where necessary.

c. Careful attention to the above instructions will be demanded.

12. *Snow.* All walks around premises and in yards must at all times be kept cleared of snow and ice. If impossible to remove ice, sprinkle walk with sand and remove ice and sand as soon as possible thereafter. A sufficient supply of sand must be kept on hand, at all times, for the purpose mentioned above.

13. *Ventilating of classrooms. a.* Ventilate thoroughly every schoolroom at the close of each school day, by opening windows and doors, except in case of storms. This rule applies only to building not provided with a plenum system of heating and ventilating.

b. The fresh-air-intake rooms and fresh-air shafts must be kept neat and clean and not used as storage rooms.

c. The doors connecting same with basement must be kept wide open when the fans and furnaces are in operation, so that classrooms may be supplied with fresh air.

14. *Temperature to be maintained during the heating season. a.* Have temperature of every schoolroom occupied for school purposes at the temperature of 70 degrees (Fahrenheit) at 8.30 A.M. on each school day and maintain the temperature between 68 degrees and 70 degrees throughout the day until school is dismissed. Heating plants must be started as early as necessary to insure these conditions.

b. Any failure of the thermostat heat regulation must be immediately reported to the supervising engineer or authorized assistants.

c. During the cold weather the temperature in school buildings must never be allowed to go below 40 degrees (Sundays and holidays included).

d. Engineers will report at once, at the office of the supervising engineer, any defect in the heating plants or apparatus that prevents or hinders the satisfactory and efficient operation of same.

e. Failure to carry out fully the instructions given above will result in the immediate dismissal of the engineer of steam-heated schools or the janitor of a furnace-heated school.

15. *Ventilating apparatus. a.* Have ventilating apparatus in full and complete operation not later than 8.30 A.M. on each school day and run same to its full capacity until the close of school sessions, unless otherwise directed by the supervising engineer or principal.

b. While the heating and ventilating plant is in operation the engineer will devote his entire time to same and to visiting classrooms to see if thermostats are working properly and the proper degree of temperature is being maintained. When the heating fan is running the air-washer must be in operation, except on rainy days.

c. The temperature of the air back of the air-washer must be kept between 50 and 55 degrees, when possible.

d. Great care must be observed in holding the proper temperature in the plenum chambers, varying with the seasons.

16. *Precaution against fire. a.* Take extraordinary precaution against fire. See that all stairways and their approaches are kept clear and clean at all times.

b. Become familiar with the use of the fire-extinguishers.

c. See that oiled cloth or waste used about the premises is kept only in the buckets provided for that purpose, the lids of which must be kept closed.

d. Engineer and janitor shall see that all metal-covered doors in the basement are kept closed except when persons are passing through them.

e. Smoking by any employee in school buildings is prohibited.

f. In buildings heated by hot-air furnaces and where floor registers are used, register boxes must be cleaned at least once every two weeks and more often if necessary.

17. *Exits and inspection. a.* See that all exit doors are unfastened on all school days, between the hours of 8 A.M. and 4 P.M.

b. Visit all parts of the building before closing for day.

c. Engineer will report to the principal each school day at 8.30 A.M. the condition of exits on forms furnished for that purpose.

18. *Flags. a.* Display the United States national colors, upon or near the school building, each school day, from 8 A.M. (except during a storm) and lower same at the close of the afternoon session. Also raise and lower the national colors at such times as the principal or supervising engineer or authorized assistants may direct.

b. No flag other than the United States national colors shall be displayed at any time.

c. On Memorial Day, May 30, the flag shall be kept at half-mast.

19. *Clocks.* Wind clocks regularly throughout the building and report to the principal if any are out of order.

20. *Pupils' desks,* etc. Report to the principal all cases of cutting or marring of pupils' desks, the breaking of ink-well covers, writing on walls, damaging the fixtures in the toilet rooms, or other such acts on the part of the pupils.

21. *Repairs.* *a.* Make all minor repairs to the heating apparatus.

b. See that the building equipment and premises in general are not destroyed or defaced by hammering nails or tacks into them. Thumb tacks may be used on upper rails of blackboard for displaying work done by the pupils.

22. *Inventory.* Engineers and janitors, if requested, shall assist the principal in taking such inventories as are customary at the end of each school year.

23. *Supplies.* Employees rendering service under the direction of this department shall at all times assist the attachés of the supply department and others in the delivery of supplies at the building, *except* in the case of the engineer, who during the hours the heating plant is in operation must attend strictly to his regular duties.

24. *Other duties.* *a.* Engineers and janitors shall perform such other duties about the building as may be assigned them by the principal. (Subject to provisions in rule 14.)

b. Engineers and janitors are not responsible for the supervision of the children at recess or at any other time. They will, however, assist the principal and teachers in such supervision, when called upon to do so.

c. To render immediate personal assistance in any emergency.

d. Carry out further orders and instructions that may be given by the supervising engineer or authorized assistants.

25. *Messenger service.* No engineer or janitor will be permitted to leave the premises during working hours, except in cases of emergency and then only by permission of the principal or supervising engineer.

26. *Conduct.* *a.* Coöperate with the principal and teachers at all times and treat the pupils with courtesy.

b. Use no intoxicating liquors on or about the school premises.

c. Any person violating this rule in any particular will be subject to immediate dismissal.

27. *Change of address.* Notify the supervising engineer's office immediately of any change of address or telephone number.

28. *Principals' reports.* Principals will address all complaints and in detail (about engineers and janitors) to the supervising engineer in writing. Damage to buildings, equipment, or other property of the Board should be immediately reported to the office of the supervising engineer by telephone and confirmed in writing as soon as possible thereafter.

29. *Appointment.* All engineers and janitors shall be appointed on six months' probation and if satisfactory service has been rendered during this period, regular appointments will then be made.

30. *Vacation.* All engineers and janitors who have completed one year's continuous employment for the Board shall be granted eighteen days leave of absence (Sundays and holidays excepted) without loss of salary, the period of leave of absence to be approved by the supervising engineer.

NOTE. All rules or parts of rules or customs conflicting with the foregoing rules and regulations are repealed and withdrawn.

Contract

Most boards of education do not provide for written contracts with their janitors. To prevent misunderstandings between the janitor and his employers, there should be such a contract. A suggestive contract is given here, which was devised by Arthur Kinkade,[1] Auditor of the Chicago Board of Education.

JANITOR'S APPOINTMENT NOTICE AND CONTRACT

---------------- 192__ ---------------- Public Schools

(This copy is to be signed and returned to business manager or board of education; the duplicate is to be retained by the janitor.)

---------------------- is hereby appointed -----------
----------- in the public schools of ---------------------
school district for a period of ---------- year beginning -----

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[1] "Janitor's Contract," *American School Board Journal* (October, 1918), Vol. LVII, p. 80.

_____________ 192__ and ending __________________ 192__ at a salary of ________________ dollars ($\_\_\_\_\_\_\_\_) per year, payable in semimonthly installments of \_\_\_\_\_\_\_\_\_\_\_\_\_ dollars ($_________) each, as follows:

The first installment shall be paid on the twentieth day of ________________ 192__, and shall include pay for all time allowed up to and including the fifteenth day of said month, and future installments will be payable on the same basis on the fifth and twentieth days respectively of each month thereafter. When any such pay day falls on Sunday, the installment then due shall be paid on the day following.

This appointment is made subject to and only upon the following conditions:

1. The appointee named herein shall be governed by, and shall perform, the duties of his position at any building of said ______ ____________________ school district to which he may be assigned, according to and in the manner prescribed by the rules and regulations of the board of education of __________________ school district, whether now in force or hereafter adopted. Failure on the part of said appointee to perform such duties in the manner aforesaid shall be ground for his immediate discharge without the notice hereinafter mentioned.

2. Either party hereto may terminate the appointment at any time hereafter by giving the other notice in writing of his or its intention so to do at least ten (10) days before such time. If said appointee quits his said employment with the board of education, ______________________________ district, before the expiration of his appointment, except as herein provided, he shall pay and forfeit to it the sum of fifteen dollars ($15), as liquidated damages.

3. This appointment shall be null and void unless accepted by said appointee within five (5) days from this date.

The Board of Education of
______________ School District
By _________________________
Secretary-Business Manager

I accept the above appointment subject to the conditions named therein, to which I assent and agree, this ___________________ day of _________________________ A.D. 192__.

Kinkade makes the following observations regarding the provisions that should be included in a janitor's contract:[1]

> It is our suggestion that the janitor's contract should be as simple as possible and that it be drawn up in as general terms as possible, without specifying exactly and in detail the duties and responsibilities of the janitor, his exact wage, etc. The following elements, however, are essential:
>
> First, a statement that the board of education has employed the particular person to act as janitor and custodian in a school building under the control of said board.
>
> Second, that the contract operate for a specified term and that the salary be paid in specified installments according to the schedule of the board of education.
>
> Third, a provision which sets forth that the janitor shall be custodian of the school building and of the property which it contains, and that he shall be responsible for the care, for the cleaning, for the heating and ventilation, and for the general upkeep of the structure.
>
> Fourth, a section should set forth specifically that the janitor is employed under the rules which are in force and which may be adopted by the board of education from time to time.
>
> A fifth provision should set forth that the janitor may resign by giving notice for a specified number of days or weeks in advance and that the board may similarly terminate the agreement.
>
> If the office is filled under civil-service rules, a provision should be included to the effect that the appointee has passed the particular examination which is required by law. A similar provision should be made concerning the licenses for the care and operation of steam boilers, of heating and ventilating apparatus, for electrical apparatus, etc. A final provision should specify the acceptance of the contract on the part of the janitor.
>
> It is the general experience that contracts which specify or are intended to specify fully all the duties of janitors cause trouble because it is necessary from time to time as conditions arise, to modify the duties of janitors, to shift men from building to building, etc.

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[1] "Janitor's Contract," *American School Board Journal* (October, 1918), Vol. LVII, p. 80.

SELECTED REFERENCES

Anderson, W. N. "The Janitor and Janitorial Service," *American School Board Journal* (September, 1923), Vol. LXVII, pp. 37–38.

Discusses the importance of efficient janitorial service and how to secure it.

Cubberley, E. P. "The School Janitor and his Work," in *The Principal and his School*, pp. 209–222. Houghton Mifflin Company, 1923.

Emphasizes relations that should exist between the principal and the janitor.

Engelhardt, N. L., Reeves, C. E., and Womrath, G. F. *Standards for Public-School Janitorial-Engineering Service.* Teachers College, Columbia University, 1926. 60 pp.

A score card for the measuring of janitorial-engineering service, with directions as to use.

Garber, J. A. The School Janitor, *United States Bureau of Education Bulletin No. 24*, 1922. 55 pp.

A study of the administration of school janitor service; replies from 1109 superintendents are tabulated; bibliography.

Hall, Leota M. "A Janitor's Contract," *American School Board Journal* (June, 1923), Vol. LXVI, pp. 50, 130, 133.

Discusses the work of the janitor of a small school system; presents a sample contract with rules and regulations.

Mickens, C. W. "Janitorial Supervision in Highland Park, Michigan," *American School Board Journal* (January, 1922), Vol. LXVIII, pp. 30–31; (February, 1922), Vol. LXVIII, pp. 33–34.

The first article discusses efficiency of janitors and methods of increasing efficiency; the second article describes a plan for fixing salaries and for measuring efficiency.

Milligan, R. M. "The Public-School Janitor and the Janitorial Staff," *American School Board Journal* (March, 1920), Vol. LX, pp. 41–42.

Makes a plea for the treatment of janitors as human beings and for an appreciation of their point of view; describes the St. Louis plan.

Reeves, C. E. *An Analysis of Janitor Service in Elementary Schools.* Teachers College, Columbia University, 1925. 194 pp.

Describes how school janitors perform their work, and suggests standards.

Reeves, C. E. "The Work of the School Janitor," *American School Board Journal* (July, 1925), Vol. LXX, pp. 45, 150.

Gives many suggestions for the daily cleaning of floors; argues for a central vacuum system. (Continued in the *American School Board Journal*, September, November, and December, 1925.)

RICHARDSON, R. E. "The Selection and Supervision of Janitors," *American School Board Journal* (May, 1918), Vol. LVI, pp. 28, 75.

Lists qualifications and duties of janitors in Reading, Pennsylvania; describes methods of appointment and supervision.

SHAPLEIGH, F. E. "The Compensation of School Janitors," *American School Board Journal* (December, 1916), Vol. LIII, pp. 23–24.

Summarizes methods of paying janitors in nine large cities.

SKEWES, J. H. "Teaching the Janitor," *American School Board Journal* (June, 1915), Vol. L, pp. 34–36.

A plea for a school for janitors and a description of the janitors' school at Racine, Wisconsin.

SMITH, K. G. *Short Course for Janitor-Engineers.* Bruce Publishing Company, Milwaukee, 1919. 106 pp.

A reference book for the janitor; contains suggestions on heating, cleaning, ventilating, etc.

VAN OOT, B. H. "Analysis of the School Janitor's Job," *American School Board Journal* (May, 1923), Vol. LXVI, pp. 55–56.

Suggests things that should be taken up in a training school for janitors.

WOMRATH, G. F. "Janitorial-Engineering Service," *American School Board Journal*, December, 1924; February, 1925; March, 1925; April, 1925; May, 1925; June, 1925; and July, 1925.

A series of seven articles which discuss rules and regulations, a janitors' training school, amount of work, wages, tools, housekeeping, and personal appearance of janitors; many photographs are shown.

Janitors' Manuals and Rules and Regulations. Many cities have these; among the better ones are those of Boston, Minneapolis, Philadelphia, and St. Louis; that of Minneapolis is especially good.

CHAPTER XIV

INSURANCE OF SCHOOL PROPERTY

Fire Insurance of School Property

Fire as a destructive force. Fire is a demon which exacts annually a huge toll from the people of the United States. The annual fire loss for the nation exceeds $500,000,000, according to the National Society for the Prevention of Waste. This figure, though huge, for it amounts to almost five dollars for each man, woman, and child in the United States, is really too small, because it represents merely the immediate destruction wrought. It does not take into consideration the loss caused by inability to continue business during the time required for repair and replacement, nor does it include the injuries and deaths caused by fire — losses that cannot be measured in dollars and cents. The statement of the Europeans that the people of the United States are mighty builders and mighty burners is not to be denied.

No kind of property escapes the danger of devastation by fire. School buildings, although most disinterested authorities consider them good insurance risks, are no exception to the rule. School-building fires are of frequent occurrence; indeed, it is reported that an average of seven school buildings are burned each day in the United States, which involves a loss of several million dollars annually. During 1926 this loss amounted to more than ten million dollars as a result of 2545 fires.[1] The National Fire Protection Association has this to say in one of its bulletins:

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[1] W. E. Mallalieu, General Manager, National Board of Fire Underwriters.

The fire loss for 1921 exceeded that of any previous year in the history of the United States. In spite of the steady development of fire-fighting science and equipment and fire-protection engineering, there has been a steadily increasing fire loss year after year. The figures are now reaching such tremendous proportions that the National Fire Protection Association is making an appeal to those in a position to inform the public to make a sustained effort to spread the gospel of fire prevention.

In his study of school-property insurance, W. T. Melchior[1] reports that 88 per cent of the fires in school buildings in New York State, during a period of six years, could be classified as strictly preventable. Indeed, it could plausibly be argued that Melchior's percentage is too low, for are not all fires, except those few which are caused by acts of nature — for example, by lightning — preventable? Even fires caused by lightning may be prevented by the proper installation of lightning rods. Therefore in attacking the problem of fire losses, the first interest is in ways and means of *preventing* fires. Prevention and insurance are the two methods of protection against fires, and of these, the former is the better and cheaper.

Prevention of School-Building Fires

In any campaign for the prevention of fires the causes and origins must first be known. The most numerous of such causes and origins must receive primary consideration, but *any* fire hazard, whether it be a frequent or infrequent cause, must be removed. Fortunately, Melchior's study reports data, shown in Tables VI and VII, on the causes and origins of school-building fires in New York State during a period of six years.

A perusal of Table VI shows that heating plants and defective chimneys and flues are responsible for approxi-

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[1] *Insuring Public-School Property*, p. 178. Teachers College, Columbia University, 1925.

TABLE VI. DISTRIBUTION OF FIRE LOSSES BY CAUSES AND CLASS OF DISTRICT; AND LIGHTNING AND WINDSTORM LOSSES BY CLASS OF DISTRICT, JANUARY 1, 1915, TO DECEMBER 31, 1920, NEW YORK STATE PUBLIC SCHOOLS[1]

Cause	Second-Class Cities	Third-Class Cities	Villages Over 4500	Union Four-Year	Union Three-Year, Two-Year, and One-Year, and Rural-Supervisory	Total Number of Cases
Fires						
Defective chimneys and flues . . .		2		2	6	10
Stoves, furnaces, boilers, pipes . .		2	1	1	10	14
Ash heaps	1				1	2
Incendiary		1	1	2	4	8
Unknown	1	2		6	20	29
Electricity		2		1		3
Rubbish					1	1
Exposure				1	6	7
Matches and smoking					2	2
Miscellaneous known causes	1	1		2	3	7
No causes reported .				1	7	8
Total	3	10	2	16	60	91
Lightning		2	2	3	7	14
Wind				4	3	7
Grand Total . . .	3	12	4	23	70	112

mately one fourth of all the fires whose causes are "known." According to fire-underwriters, most fires reported as of "unknown" cause are probably due either to poor heating plants and defective chimneys or to defective electrical wiring.[1] The data in Table VI have more meaning if studied with the data in Table VII. From Table VII it is observed that fifteen fires started near stoves, furnaces, boilers, pipes, and chimneys; twelve started in the basement, and most of these undoubtedly had their origin near the heating plant.

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[1] *Insuring Public-School Property*, p. 121.

TABLE VII. DISTRIBUTION OF ORIGIN OF FIRE LOSSES BY PLACE FIRE STARTED AND BY CLASS OF DISTRICT, JANUARY 1, 1915, TO DECEMBER 31, 1920, NEW YORK STATE PUBLIC SCHOOLS [2]

CAUSE	SECOND-CLASS CITIES	THIRD-CLASS CITIES	VILLAGES OVER 4500	UNION FOUR-YEAR	UNION THREE-YEAR, TWO-YEAR, AND ONE-YEAR, AND RURAL-SUPERVISORY	TOTAL NUMBER OF CASES
Chimney		1		2	2	5
Roof				1	4	5
Attic		1			1	2
Near stoves, furnaces, boilers, pipes . . .	1			1	8	10
Basement		3		3	6	12
Laboratory and special rooms		2		2		4
Wastebasket				1	1	2
Interior	1		1	1	5	8
Woodshed					4	4
Exterior		1	1	1	7	10
Unknown	1				7	8
Grand Total . . .	3	8	2	12	45	70

Since the heating plant and the electrical-wiring system constitute the most frequent causes of fires, they should be expertly installed, kept in a proper state of repair, and carefully used. Rubbish should not be allowed to accumulate, as it often does, particularly under stairways, in basements, in closets, and in attics. Storerooms, laboratories, cooking rooms, and manual-training departments generally house materials which present unusual fire hazards, and these hazards should be reduced to a minimum. Pupils and employees should be cautioned about the careless use of matches; smoking about school buildings should be taboo. Ashes from burning grates should be stored in a fireproof receptacle or placed where they will not constitute a fire menace. Until it can be disposed of, the paper that is collected from the waste-paper baskets during the day should be placed in a fireproof receptacle, say a covered tin can. Oils and similar materials should likewise be stored in a fireproof receptacle or room.

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[1] *Insuring Public-School Property*, p. 122.

[2] Ibid. p. 121.

Controlling and Extinguishing School-Building Fires

In addition to seeing that the causes of fires are removed, when a building is being constructed attention should be given to means which will retard and stop the spread of fires. For suggestions on how the spread of fires may be controlled and stopped by greater attention to the construction of the building, there is no better source of information than the Report of the Faneuil Hall Committee for the Guidance of Municipal Authorities in Massachusetts. The pertinent parts of that report are given here:

SAFEGUARDING AGAINST FIRE

1. *Basements classed according to occupation. a. Containing only heating apparatus and storage* (*no children*). Basements of this class should be entirely cut off from the first floor and be entered only from outside. If the first-floor frame is wood, even if now plastered on wood lath, it should be plastered again on metal lath. All wood partitions should either be replaced with masonry or covered with metal lath and plaster, especial care being taken to fire-stop all openings, such as heating ducts, which connect basement and first floor. All spaces where inflammable material could be placed should be protected with sprinklers.

b. Containing heating apparatus and children. Basements of this class should preferably be treated as in 1, that is, cut off entirely from first floor; but if existing stairs from first floor to basement are necessary, or if it appears to be impracticable to send the children outdoors before going down to the basement, the stairs should be freed of any inclosed space under, and if of wood, should preferably be replaced by a fireproof stair. In any case, the stairs should be shut off with partition protected by metal lath and plaster and a fireproof spring-closing door, so that neither fire nor smoke can find its way up. Such doors should not be hooked open during school session. There should also be direct exit from space occupied by children to outside. With shops, cooking, and manual training, storage for wood and other material, another element of danger, is introduced; that is, fire in the kitchen, or inflammable material in the shop. All such rooms should be protected with sprinklers. The portion of basement occupied by shops should be cut off with partitions protected by metal lath and plaster and fire doors, and preferably have direct exits to grade without the necessity of using the stairs to the first floor or going into other parts of the basement.

c. School occupation but no heating apparatus. With the removal from basements of the heating apparatus and fuel storage which accompanies it, the chief sources of fire are removed, and no special precaution is necessary except to equip with sprinklers the shops and places where wood or other inflammable supplies are stored or used.

2. *Attics by occupation. a. Storage only, or unoccupied.* In attics of this class, framed of wood and used for only storage, such use should be abandoned, or they should be protected by sprinklers (or dry-pipe system with steamer connections), and stairs or other means of access from upper story to attic should be cut off with protected partitions and fire doors. In some cases automatic ventilators should be installed.

b. Containing children. In attics of this class the portion occupied by classes or as halls or assembly rooms should be cut off with metal-lathed and plastered partitions and spring-closing fire doors from the rest of the attic, the unoccupied attic portion being protected as under (*a*).

3. *Roofs by occupation.* Unless of fireproof construction or provided with exits as the other floors of the building, roofs should not be occupied by children.

4. *Classroom floors — floors other than basement or attic.* Classroom floors are generally so occupied with people that the starting of fire on any of these floors during school hours is unlikely, and if started may generally be easily put out.

a. Care should be exercised with inflammable material; closets containing such material should be eliminated and stock kept in plain sight, and rooms in which, owing to the use of such stock, fire might start (such as shops, kitchens, laboratories, etc.) should be equipped with sprinklers. Each floor should also be provided with fire-extinguishers.

b. If basement and basement stairs are protected and attics protected, the stairs elsewhere should simply be kept free of all obstructions.

5. *Housekeeping.* *a.* Inflammable material such as paper and other waste should be placed in metal containers, or in plain sight, and emptied every day.

b. All oils and oil waste and oil-saturated floor mops should be kept in metal receptacles and always in plain sight in open places.

c. In buildings having more than four rooms, or exceeding one story in height, the janitor or his assistant should be in the building at all times during the session.

d. Where gas is used, provide a shut-off outside the building, with a wrench for closing same readily accessible near main entrance, and clearly marked.

6. *General recommendations as to little children.* Children of second grade and under should not be housed above the first floor. There should be exits from the first-floor rooms directly outside. Portable schools with stoves in them should have two exits.

Safeguarding Life in School-Building Fires

With every conceivable precaution fires may and do occur. Proof of this is found in the fact that several so-called "fireproof" buildings have burned. It is the duty of those in charge of the schools to make certain that, in case of a fire, the safety of the occupants of the building shall be the first consideration. The protection of the building is secondary.

Several school-building fires have occurred in which many pupils and teachers have lost their lives. The most horrible of these catastrophes was that at Collinwood, Ohio, in 1908, which cost the lives of one hundred and seventy-three children and two teachers. Such calamities have focused the attention of our law-making assemblies on the necessity for legal provisions to govern the protection of occupants of school buildings. Today every state has legislation of some kind relative to the construction and use of school buildings. This legislation usually prescribes a building that will permit a rapid and an orderly escape of the occupants in case of fire, and it generally requires a fire drill not less than once a month. On the problem of safeguarding the occupants of school buildings in event of fire, the suggestions of the Faneuil Hall Committee for the Guidance of Municipal Authorities in Massachusetts are well worth perusing; these suggestions follow:

I. PREVENTION OF SPREAD OF FIRE OR SMOKE

1. *Doors and partitions.* Doors to basement and attic stairs, already advised to be fireproof and arranged with springs so as to be kept always closed, will provide against the chief danger of the rapid spread of fire or smoke. Other doors or partitions cutting off stairs are not advised, but an additional safeguard can be provided by making one cross wall, or at least by constructing walls with swinging fire doors across the middle of long corridors. As this might well be protection against fire as well as smoke, this partition should be protected with metal lath and plaster, and have in the corridor a spring-closing fire door. To make this effective in time of fire the classroom must be connected. This should be done with the utmost care (see next section), as a class of children suddenly dismissed by an unaccustomed door into another room occupied with fixed furniture and children might easily be a worse evil than the one exit.

2. *Sprinklers and fire-extinguishers.* The use of these in stopping the spread of fire and the places where they should be installed is covered under 1.[1]

II. Means of Exit

1. *Doors from classrooms, doors to stairs, doors from building.* Doors from classrooms which seat only an ordinary class may open either in or out, and preferably there should be but one door to the corridor. If there is only one door to the corridor, the class is more under the teacher's control. If there are two doors, or if the doors open out, the teacher may lose control. Control at this point is the chief factor of safety. If the door opens out, it should not block the corridor space but be recessed. If, as advised in a previous paragraph, communicating doors between rooms are added to give cross connection, these should be opposite the aisles or should open into a clear space. Doors from assembly halls should always open out and have self-releasing devices, so that they can always be opened by pressure from within. Where there are partitions shutting off stairs the doors in such partitions should open from corridor to stair directly opposite the stair going down and should have no locks or latches, but be equipped with spring-closing devices only and should open so as not to block the landings. Doors to fire escapes, that is, definite exits for use in emergency rather than for daily use, should have self-releasing device to open out. Vestibule doors should open out and have no fastener; these are safer than double swing. Outside doors should open out. There should be no dead locks, but only spring locks operated by the inside handle. Where doors are double the standing door should have top and bottom bolts arranged for quick release, but a self-releasing device for both doors is better still.

2. *Corridors.* Should be kept clear of all inflammable material and all obstructions.

3. *Stairs.* Should be free from obstruction, especially those which (like doors opening onto landings) might reduce the available width of landings below that of the stairs. Handrails should be placed on both sides at a normal height. Stairs wide enough for four abreast or over five feet, are dangerous in any case and should have a center

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[1] See pages 291, 292, and 293.

rail. It is obvious that no general instructions can be given, as each case will be particular. In general, it may be said that the lives of the children are better guarded by safeguarding the stairs in daily use than by building emergency fire escapes.

4. *Fire escapes.* Where the regular interior stairs are manifestly unsafe, insufficient, and not capable of material improvement, an iron fire escape may be accepted as an additional safeguard, but this should not be done unless it has first been proved, through consultation with competent authorities, impossible to safeguard the stairs in daily use. Fire escapes should be of the stair type and lead directly to the ground. If the building to be equipped with fire escape has more than two stories of classrooms, the fire escape should be of the smokeproof tower type. Existing fire escapes which pass windows from which fire and smoke may issue should be classed as useless and disregarded as a safe means of exit.

III. Fire Signals and Drills

All schools over one story high should be equipped with a fire-alarm signal. This should be the 4-4 already adopted in many places. Let this be the fire call recognized throughout the state. It is desirable that this apparatus be connected with the town fire department and be tested weekly by and under the control of that department. Its effectiveness depends on its being in order.

Fire drills should be an accustomed exercise. The time taken might be considered as a lesson in order and discipline and marked as is punctuality. Drill should be called to include all school activities, that is, sounded when children are in the classroom, in the hall, in the gymnasium. The school physician as well as the master should consider that the responsibility for this rests with him.

Directions and suggestions should be given to all teachers on how to conduct fire drills. A clear and definite set of rules should be designed and this set standardized for use throughout the school system; indeed, in making people familiar with such features there would be advantages in having a state-wide or nation-wide standardization of some features of fire drills. For a model set of fire-drill rules, that of Rhode Island is worth consulting. It is reproduced in the following paragraphs:

The various school buildings throughout the state differ greatly in size, height, number of exits, width of stairways, and number of rooms, but the purpose of a fire drill will be accomplished in any building if the following general rules are observed:

1. The pupils at all times should pass into and out of the room and the building in an orderly manner.

2. Each teacher should practice with his pupils to see how quickly they can leave the room in an orderly manner by the nearest exit. After he has found the most orderly and the quickest ways of passing, he should then be ready to act in harmony with the principal of the building and follow his directions explicitly.

3. There should be a gong or bell in each building to sound as a signal of the drill. The exits to be used may be determined by the number of strokes on the gong or by the ringing of the bell.

4. The code of signals for each exit should be placed permanently in a conspicuous place on the blackboard in each room, and the pupils should be drilled to respond instantly to the signals without direction or command from the teacher.

5. The teachers on the lower floor should have the pupils pass promptly and rapidly to make room for those on the floors above.

6. Great care should be exercised to prevent crowding on the stairways. The width of the stairways should determine whether the pupils should pass in single file or two or more abreast.

7. Provision should be made not only for clearing the building when all the pupils are in the study rooms, but when they are scattered throughout the building in small rooms for recitations. Be prepared for prompt action at any hour or minute of the day.

8. It should be the duty of someone to see that no child is left in any closet or dressing room opening out of the school room.

9. A record giving the hour of the drill, the number of children and teachers in the building, the time occupied in the drill, and the number of exits used should be filed on a blank provided for that purpose.

10. The entire matter involves careful planning and prompt and systematic execution on the part of the principal and the teachers, as no one knows when the efficiency of the drill may be tested.

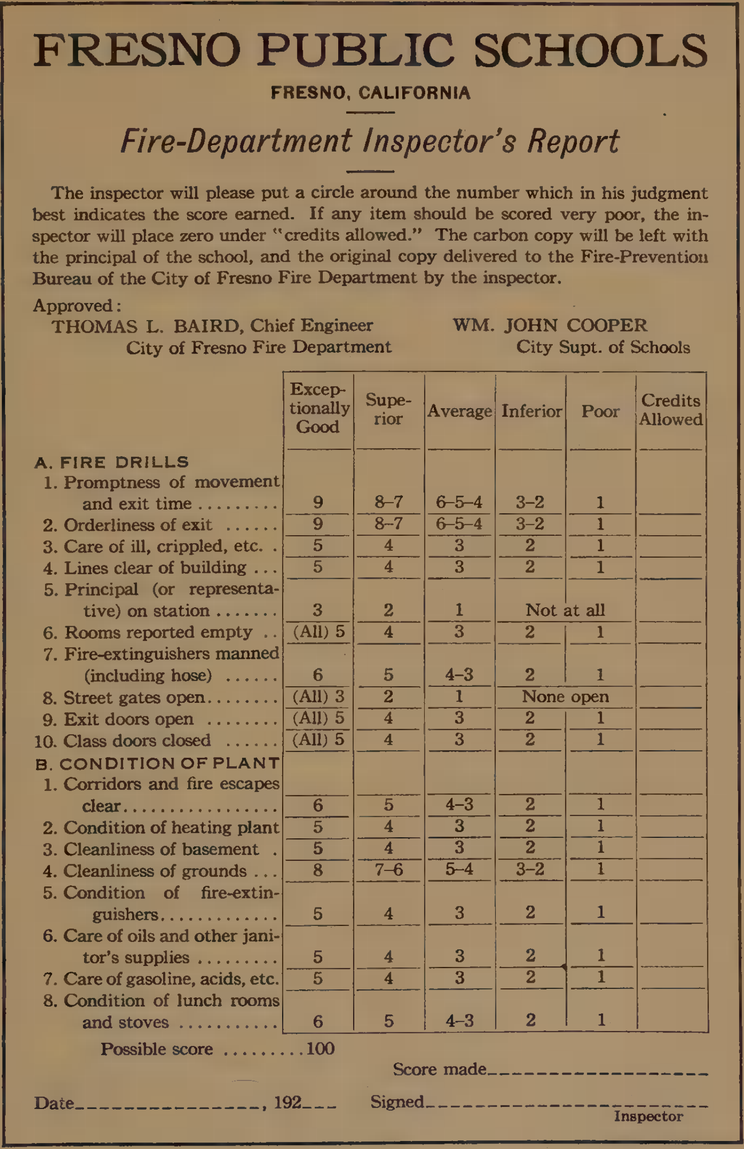
SUGGESTIONS

Teachers should not be satisfied with the results of fire drills in their schools until order and precision similar to that practiced in military organizations is secured and maintained. The drill should be practiced so frequently that no confusion will appear in the ranks when passing and that no pupil will be uncertain as to what direction he is to take or when he is to start.

From recorded experience in this connection one may be justified in assuming that children will do in an emergency just what they have been trained to do in preparation for such an event. If they are drilled to get their clothing before leaving the building, when the signal is given for a drill, they will get their clothing, probably, if the signal is for a fire. If they are allowed to go into the building after a drill without orders to do so, they may enter the building when there is a fire, unless the effects of fire are visible. Other possibilities of a similar character should be considered by teachers when they prepare and execute the drill.

Fire Inspection of School Buildings

Since the janitors are primarily responsible for the removal of fire hazards, instructions along these lines should be issued to them from time to time, say once or twice a year. In addition to these instructions, a systematic plan for the inspection of buildings should be in force; this inspection is particularly recommended for communities which carry their own insurance risks. The inspection may be done by someone from the community fire department or by someone from the central school office, for example, the head janitor or the superintendent of buildings and grounds. In Fresno, California, the ex-Superintendent of Schools, William John Cooper, designed an excellent score card for measuring the standing of the school plant with respect to fire hazards and the efficiency of fire drills. A copy of Cooper's score card is reproduced in Fig. 35.



FRESNO PUBLIC SCHOOLS

FRESNO, CALIFORNIA

Fire-Department Inspector's Report

The inspector will please put a circle around the number which in his judgment best indicates the score earned. If any item should be scored very poor, the inspector will place zero under "credits allowed." The carbon copy will be left with the principal of the school, and the original copy delivered to the Fire-Prevention Bureau of the City of Fresno Fire Department by the inspector.

Approved:

THOMAS L. BAIRD, Chief Engineer
City of Fresno Fire Department

WM. JOHN COOPER
City Supt. of Schools

	Exceptionally Good	Superior	Average	Inferior	Poor	Credits Allowed
A. FIRE DRILLS						
1. Promptness of movement and exit time	9	8–7	6–5–4	3–2	1	
2. Orderliness of exit	9	8–7	6–5–4	3–2	1	
3. Care of ill, crippled, etc. .	5	4	3	2	1	
4. Lines clear of building ...	5	4	3	2	1	
5. Principal (or representative) on station	3	2	1	Not at all		
6. Rooms reported empty ..	(All) 5	4	3	2	1	
7. Fire-extinguishers manned (including hose)	6	5	4–3	2	1	
8. Street gates open........	(All) 3	2	1	None open		
9. Exit doors open	(All) 5	4	3	2	1	
10. Class doors closed	(All) 5	4	3	2	1	
B. CONDITION OF PLANT						
1. Corridors and fire escapes clear.................	6	5	4–3	2	1	
2. Condition of heating plant	5	4	3	2	1	
3. Cleanliness of basement .	5	4	3	2	1	
4. Cleanliness of grounds ...	8	7–6	5–4	3–2	1	
5. Condition of fire-extinguishers............	5	4	3	2	1	
6. Care of oils and other janitor's supplies	5	4	3	2	1	
7. Care of gasoline, acids, etc.	5	4	3	2	1	
8. Condition of lunch rooms and stoves	6	5	4–3	2	1	

Possible score 100

Score made_________________

Date_______________, 192___ Signed_____________________
Inspector

FIG. 35. Sample of score card for measuring provisions against fire hazards

In a recent letter Mr. Cooper speaks thus of the development and use of the score card:

> The Fresno City Fire Department during the past two years has been especially active in fire-prevention work, and the city schools have coöperated in every way possible in this work. To keep up interest in fire prevention, now that the city has won the well-known Ince Trophy, the fire department is anxious to discover new ways of fire-prevention campaigning. The city superintendent of schools has been working for some time upon a scheme for scoring fire drills and the condition of the school plant from the fire-prevention point of view. This seemed a propitious time to spring the matter, and accordingly there has been printed the form attached [see Fig. 35], which is bound in books and one book left with each school. All fire alarms are turned in by representatives of the city fire department and are supposed to be a surprise to pupils, teachers, janitors, and principal alike.
>
> You will note that in order to get an excellent report all of the four groups must coöperate. For instance, under topic A, items 1, 2, 3, and 4 are primarily up to the pupils. Item 5 means that the principal must get quickly to a designated station where he can see the greatest number of his pupils. Item 6 means that there is a pupil in each room who is responsible for quickly reporting to the principal at his station that said pupil's room is empty of all children. Item 7 requires, in large schools, that the janitors promptly man the emergency fire hose. In the smaller schools two boys are appointed in each room to carry the fire-extinguisher from that room. In our small portable buildings, as soon as the fire alarm has been turned in, the children march out and after they are entirely clear of the building the last two boys set down the fire-extinguisher so that the fire-fighting force can see all the fire-extinguishers belonging to the school lined up where they may be used. Item 8 requires that janitors or pupils be responsible for seeing that street gates are open to permit ready entrance by the fire department. Item 9 provides that all doors to the grounds must be open. Under item 10 the pupils are responsible for the closing of classroom doors after the rooms are empty, in order that the progress of the fire may be retarded.
>
> Under topic B, item 1 requires the coöperation of pupils and janitor. Item 2 makes the janitors responsible, as does item 3, but

item 4 is largely a matter for pupils to attend to. Item 5, the care of and recharging of fire-extinguishers, is the duty of the janitors under the supervision of the principal. Item 6 checks the janitor on keeping oils, oily sawdust, and oily rags, in fireproof containers. Item 7 not only checks janitors but teachers who use gasoline and acids in their classrooms. Item 8 requires the coöperation of teacher, pupils, and other employees.

The man in charge of the drill rates each item indicated on the score sheet and gives the fire drill, and his inspection following the drill, a rating. The original is turned into the Fire Marshall's office. The duplicate remains in the book in the principal's office. A rating which is unsatisfactory to the Fire Marshall is soon followed by another drill and inspection. Unless decided improvement is made the Fire Marshall then reports to the City Superintendent of Schools.

School Buildings as Insurance Risks

The evidence on the question of whether school buildings are good or bad insurance risks is somewhat antithetical. One hundred and eighty-four randomly selected school districts in Pennsylvania paid $1,025,353 in fire-insurance premiums during the five years from 1920 to 1925, but the fire losses for these districts during the same period amounted to only $442,867; in other words, the losses were only 43 per cent of the premiums.[1] W. T. Melchior[2] shows in his New York study, in which data on losses and premiums were reported for 1182 school buildings, that the losses during the six-year period from 1915 to 1921 were only 35.6 per cent of the premiums. R. H. Thomas,[3] ex-Clerk and Business Manager of the Board of Education of Portland, Oregon, shows that in the sixteen-year period from 1902 to 1918 the schools of Oregon received in payment for fire losses only 40.1 per cent of the premiums. In Pennsylvania, therefore, 57 per cent of the premiums went to the fire-insurance companies for overhead and profits; in New York, 64.6 per cent went for such; and in Oregon, 59.9 per cent went for the same. Since 40 per cent is approximately the average expense of overhead, obviously the profits on insuring the school buildings of these states were large.[1]

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[1] *American School Board Journal* (April, 1925), Vol. LXX, pp. 101–102.

[2] *Insuring Public-School Property*, pp. 132–133.

[3] "Fire Insurance in Public Schools," *American School Board Journal* (September, 1918), Vol. LVII, p. 36.

Several considerations that should tend to make school buildings, particularly the newer school buildings, better insurance risks than other buildings are given here:

1. They are more isolated; the fire hazard, due to the factor of exposure, is very low.
2. They are frequently constructed either of fireproof material or of fire-resisting material.
3. They are usually required by law to be equipped with fire-fighting apparatus.
4. They do not contain highly combustible, inflammable materials as other buildings often do.
5. They are occupied only a few hours of the day; moreover, they are occupied by a group without smoking habits.

As opposed to the evidence, objective and theoretical, that school buildings *are* good fire-insurance risks, there is some opinion to the effect that they are *not* good risks. The latter opinion is held by most insurance companies. Melchior shows in his symposium on "Public-School Buildings as Insurance Risks," which symposium was participated in by the presidents and managers of thirty-four representative insurance companies, that three considered school buildings *good* risks; four, *fair*; twenty, *bad*; and seven, *very bad*.[2] The reasons given by these executives for considering school buildings *bad* risks may be grouped under the headings of *poor construction*, *general carelessness*, and *lack of fire protection*.

[1] *Insuring Public-School Property*, p. 165.

[2] Ibid. pp. 164–165.

Methods of Insuring School Property

Various practices are in vogue regarding the insuring of school property against fire. These practices are as follows:

No insurance. The policy of carrying no insurance is never to be recommended for a small community, — for example, one with one building or with only a few buildings. The loss of one large building in such a community would be the equivalent of the insurance premiums for several years. Moreover, the replacement of one building, or a considerable part of one building, might be a staggering blow to the finances of the community. A small community, therefore, should not fail to carry school-building insurance, and the smaller it is, the nearer to full value its buildings should be insured.

Many of the larger cities, however, prefer to carry their own fire risks, just as many large industrial firms prefer to carry their own. These cities proceed on the theory that if any loss occurs it will be so small that it can be met by a special appropriation. Following is an excerpt from a letter of May 26, 1926, written by John E. Byrnes, Business Manager for the Board of Education of the City of Chicago, a city which does not insure its school buildings:

> At no time during my thirty-years service with the Board has a school building been totally destroyed by fire. During the past two years, two school buildings were badly damaged to the extent of approximately $25,000 each; but our records show that the loss by fire in all school buildings during the past 25 years would average about $6000 per year.

Many other large cities — for example, Columbus (Ohio), Milwaukee, New York City, and San Francisco — follow the same practice as Chicago. Columbus, a city of approximately three hundred thousand population (1928) has not carried school-building insurance for many years. In Columbus the fire loss during the last ten years has been only $3600. Ohio State University, which has an investment in its buildings and equipment of approximately $8,000,000, has had a fire loss of only $10,600 during a period of twenty years, from 1907 to 1927.

Even the large city, however, cannot rest assured that it will always be fortunate in escaping a staggering fire loss. A general conflagration such as befell San Francisco in 1906 might mean a loss of millions of dollars; again, the loss of one large school building might amount to one, two, or three million dollars. Of course the chances are few that such calamities will occur. Because efficient means for fighting fires have been developed, most school-building fires, particularly in the cities, are of a minor nature. Only in the rural and village communities — communities largely without fire protection — do any considerable number of fires result in complete losses.

Flat insurance. Among those communities which carry school-building insurance, the general practice is to carry flat insurance. In this type of insurance, the insurance company pays the entire amount for which a building is insured, in case it is completely destroyed. Should the building be damaged by fire to the extent of $500, the insurance company will pay that amount.

Co-insurance. Under this plan the property-owner has a loss paid in the proportion which the amount of insurance he buys bears to the amount which the company requires him to carry. The insured is permitted to buy the amount which he deems necessary, but whatever amount he buys, it is provided that he shall receive pay for losses in the proportion for which he is willing to insure his property and to pay his share of premiums. In most instances, insurance companies require the property-owner to insure to 80 per cent of value. The "co-insurance clause" is sometimes referred to as the "average clause," the "reduced-rate-average clause," and the "percentage-value clause."

Mutual insurance. Mutual insurance is an arrangement whereby the earnings or part of the earnings of the insurance company are returned to the policy-holders. The smaller the losses, therefore, the greater the reduction in premium which the insured receives. There are some good mutual-insurance companies, but many of them should be investigated carefully before insurance is placed with them. In Texas the laws prohibit the insuring of school property in mutual companies.

Community insurance. In community insurance the community sets aside a certain fund, often called a "replacement fund," to be used in case there is a fire loss. It is evident that this type of insurance is feasible only in fairly large communities. Excellent illustrations of it are found in Cincinnati, Cleveland, Kansas City (Missouri), Newark (New Jersey), and Philadelphia. The Cincinnati plan is typical, and for that reason the essential features of it are described here.

In 1913 the Cincinnati Board of Education decided to carry its own insurance, and it set aside $25,000 annually for a permanent fund that would be used to repair any damage caused by fire. This amount was approximately the same as that which the schools were paying the insurance companies each year. In establishing the fund it was provided that the fund could not be used for anything except for repairing fire damages; this rule has been strictly followed.

The fund has bountifully increased, because of the annual payments and the annual interest on the investment, until in 1927 it amounted to approximately $400,000. Fire losses in Cincinnati have been very small, and this fact largely accounts for the rapid growth of the fund. Cincinnati's small losses are probably due to the facts that great care has been taken to see that all fire hazards in and near the school buildings were either entirely eliminated or reduced to a minimum, and that ample and efficient fire-fighting apparatus was close at hand. It seems plausible to assume that community insurance of school buildings tends to make a community more zealous in protecting its buildings than it would be if the buildings were insured with an old-line company.

The insurance fund is invested in Cincinnati school bonds. The annual interest on the bonds is also placed in the insurance fund. At present the interest on the fund amounts to approximately $20,000 annually, a sum almost as large as the appropriation of $25,000 which has been paid annually since 1913.

The interest on the present fund has been deemed adequate by the board of education to take care of all probable fire losses in the future. For that reason, since 1925 no provision has been made in the budget for the annual appropriation. Cincinnati now has virtually an endowment fund, which, if it is properly handled and the city is fairly fortunate in escaping large fire losses, will insure her school buildings in perpetuity. It is to be noted, moreover, that this has been created without any extra drain on the school budget; what would have been paid to the insurance companies has been diverted to the fund.

In addition to the economy which results, the plan eliminates the extensive work necessary in computing valuations of buildings, in figuring rates, in looking after the payment of premiums, and in renewing policies. Yet another thing in favor of the plan is that it obviates the competition of the numerous insurance companies for the school business, a competition which frequently engenders jealousies and hatreds harmful to the school.

In introducing the plan most cities have not dropped all their old-line insurance until the replacement fund was of sufficient amount to care for any probable loss. If an unusually large fire loss should occur while the city is using the community plan, old-line insurance could be maintained until the replacement fund was built up again.

It is evident, however, that the plan would hardly be advisable in a small community with only one or two school buildings. The complete loss of the only building or of one of the few buildings in a small community might mean a staggering blow to the finances of the community. The plan is practicable only in fairly large cities and in counties that have all the schools under one board of education. In many such communities the plan is now in successful operation, and it is believed that the plan is worth a trial by other large communities.

In a letter of May 27, 1926, C. W. Handman, Business Manager of the Cincinnati Board of Education, says of community insurance in that city:

> This plan has been working very successfully for a number of years and has been a means of saving thousands of dollars. It is true that our fire losses in Cincinnati have been very small, due to the fact that all possible fire hazards in and near school buildings have been eliminated. I might also say that we are rapidly replacing our older type of buildings with new fireproof schoolhouses.

Kansas City, Missouri, has also had the community-insurance plan in operation for several years, and with the same excellent results. J. B. Jackson, Secretary of the Board of Directors of the Kansas City School District, writes the following in a letter of June 23, 1926:

> About fifteen years ago our Board instructed me not to arrange for any additional fire insurance and to allow the insurance then in force to expire. The Public Library building in this city is owned and operated by the School District the same as the public schools,

and in this building there is a large quantity of museum relics and very valuable paintings and works of art which have been loaned for a number of years by citizens; necessarily there are large quantities of chemicals and such materials in that building. The Manual Training High School, also in the congested business district, is quite an old building and in no way fireproof. The repair department and supply room at certain times of the year contain much material in the way of oils, paints, etc. which might cause a fire. For the above reasons I have allowed the insurance to run on these buildings only.

The plan has been to place in an insurance fund an amount equal to what would be expended for premiums, were we carrying the insurance on the schools. We now have in our insurance fund approximately $185,000, and our fire losses during the fifteen years have been practically nothing. I think they would not exceed $4000.

State insurance. Three states — North Dakota, South Carolina, and Wisconsin — have enacted laws which provide for state insurance of school buildings. In North Dakota all public property must be insured in the state fund, but in South Carolina and Wisconsin the matter is optional with local officials. South Carolina adopted the plan in 1900, Wisconsin in 1903, and North Dakota in 1919. That the plan has resulted in large economies and is worthy of wider usage is evident from the following quotations, the first of which applies to South Carolina, the pioneer in adopting the plan:

The net profits arising from this state insurance of public buildings has averaged 70 per cent of the gross premium income. The remaining 30 per cent has gone for the payment of all losses, expenses, and reinsurance. It may be noted that the overhead expenses in conducting this business average less than 3 per cent of the gross premium income as compared with an average overhead of the old line insurance companies of approximately 42 per cent.[1]

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[1] J. L. Sherard, "Free Insurance for School Buildings," *American School Board Journal* (November, 1926), Vol. LXXIII, p. 40.

Regarding the success of the plan in Wisconsin, where in 1925 one hundred and nine school districts had policies in the state insurance fund, Olaf H. Johnson, State Commissioner of Insurance, writes in a letter under date of August 10, 1926:

> The State Insurance Fund writes insurance on state, city, county, and village school districts at 75 per cent of the rates charged by stock companies.
>
> The Fund has been very successful since it was organized in 1903, and by September 1, 1926, the assets will amount to about $1,500,000. We have invested in farm mortgages and bonds, and the interest received from these investments has been more than enough to pay the losses and the general expenses of the fund.

Terms of Insurance Policies

The insurance policy should have a term of from two to five years. Generally speaking, the longer the term the smaller the premium will be. The rate for the three-year term, for example, is usually two and one-half times that for a one-year term. Long-term insurance policies have the further advantage of saving the time of the school officials in attending to these matters. Most insurance policies are written for a period of three years.

In writing the policy the distribution of the payment of the premium should be kept in mind. For example, if payment of all the premium at one time on, for instance, a three-year policy would present too big a load for the budget for one year, the payment should be distributed. One third of the amount may be paid on a certain day of each of the three years.

Amount of Insurance to Carry

After school officials have decided to insure with old-line companies, and after the valuation of the property has been fixed, the percentage of valuation at which the property shall be insured must next be determined. This percentage cannot be stated categorically; it depends on the size of the community and the fire hazard. A small community would be more justified in insuring at full value or at nearly full value than a large community would be; this remark applies with particular cogency to the small community that has a large indebtedness. Buildings of fireproof or of fire-resisting construction, buildings somewhat isolated from other buildings, and buildings close to fire stations and fire plugs, may justifiably be insured at a lower percentage of their value. Frame buildings, or those with similar hazards, should be insured at a higher percentage of their value. As a general proposition, it is not wise to insure at full value; first, because most fires are of a minor nature, and, second, because some parts of the property, such as excavations, foundations, and underground piping, are hardly fire destructible.

Placing the Insurance

The decision having been made to carry insurance on the school buildings of a community and the amount and kind of insurance having been determined, the next question that presents itself is With what company or companies shall the insurance be placed? This problem is usually perplexing, because several hundred fire-insurance companies are in operation, and in most communities many of these companies will be represented by agents, who often insist that the business be given to them. In placing insurance, therefore, the problem is twofold: first, to investigate all companies with which insurance is about to be placed in order to make sure of their responsibility; second, to devise an equitable basis for prorating the insurance among the various agents or agencies that are competing for the business.

School officials can seldom make a mistake in contracting with any company, because all states have laws requiring the certification of insurance companies doing business within the state. However, state officials whose function it is to certify these companies must do so according to the state laws, and some companies thus able to secure certification are not the best. Therefore it is never amiss to inquire further into the responsibility of all companies. Companies with immediate and high loss-paying reputations are the ones with which to place contracts. Several reliable ratings of fire-insurance companies are to be had, and one of these should be inspected before insurance is placed.

An equitable basis for prorating the school's insurance business must be devised, if school officials are to escape the charge of partiality. R. H. Thomas[1] recommends that a circular letter be sent to all the insurance agencies in the community informing them of the plan which the board of education has adopted for the prorating and placing of insurance. This enables those agencies which desire to compete for a share of the business to do so. An announcement in the local papers would also be effective. The agency should be permitted to distribute in any way that it deems desirable the business which it receives among the several companies that it represents; of course the school officials should insist that only responsible companies should receive an insurance allotment.

A plan of prorating the business among the several agencies has been formulated by the school officials of Minneapolis and has been successfully used there since 1916. A description of the plan is worth quoting here in full:[2]

> After several years of experience in the allotment of fire insurance, $40,000 has been found to be the correct minimum to be given

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[1] "Fire Insurance in Public Schools," *American School Board Journal* (September, 1918), Vol. LVII, p. 36.

[2] Mimeographed material from George F. Womrath, Business Superintendent, Board of Education, Minneapolis.

to any one agency. A maximum of $250,000 was also set for any one agency in order that no agency would get an unduly large proportion of the total amount of insurance written and to protect equitably the agents who pay a small amount of taxes but who are in the majority. Wherever possible, instead of writing a number of policies through several agencies in the same company, one general policy is written in which all the agencies of the company participate. This simplifies the records, reduces the number of policies handled, and reduces the expense and trouble when adjusting fire losses.

On the above basis, the accompanying graph has been worked out, which clearly shows the amount of insurance which is alloted to any agent, depending upon the information given by him through the questionnaire and the working out of the formula.

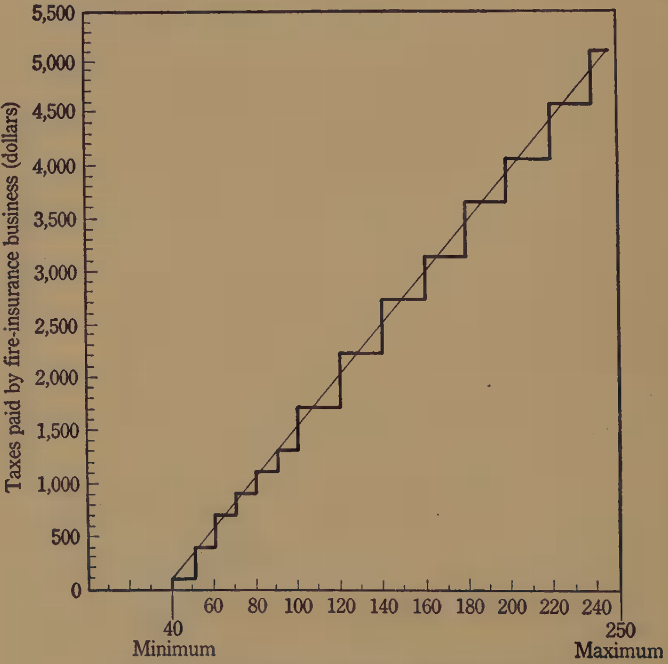

FIG. 36. Allotment of insurance in $1000 units

The Division of Insurance of the Board of Education allots and distributes the fire insurance covering the physical property (buildings and contents) owned by the Board.

At the present time (September, 1925) the Board carries $12,294,560 fire insurance which is 60 per cent of the book value of the buildings and their contents. This insurance is distributed among 163 agents and is covered under 282 policies written by 99 different fire-insurance companies. These policies vary in amount from $10,000 to $350,000.

The allotment of insurance to agents is based upon a mathematical formula which has worked out so equitably for the fire-insurance agencies in Minneapolis that almost all occasion for dissatisfaction has been removed. The factors which enter into this formula are secured from each agent annually through a questionnaire.

From the answers given in the questionnaire, certain factors are secured which, when applied to the simple mathematical insurance formula used by the Board, give the amount of school insurance to which the agency is entitled. The principal factor used in computing the amount of insurance to be allotted to any agency is the amount of taxes, real and personal, paid to the City of Minneapolis by the active officers of the agency.

The formula is

$$x = \frac{300\,y - 250{,}000}{7},$$

in which x equals the insurance allotment; y equals the amount of taxes multiplied by the percentage of business actually devoted to fire insurance.

When converted into a schedule the preceding graph and formula give [the table shown at the top of page 314].

In some cases an agent may at present have more than his rightful allotment, because of changes in taxes paid or prorated change in his fire-insurance business. Reduction of insurance cannot be made until the expiration of the five-year period for which all policies are written.

In other cases the agent may not have his full allotment because the Board has not the insurance to write. These agents are given policies as far as new insurance is written until their full quota is reached.

y AGENT'S TAXES AS REPORTED BY HIM AND UPON WHICH HIS ALLOTMENT OF INSURANCE IS BASED	x ALLOTMENT
$0 — $100	$40,000 *Minimum*
100 — 400	50,000
400 — 700	60,000
700 — 900	70,000
900 — 1100	80,000
1100 — 1300	90,000
1300 — 1700	100,000
1700 — 2200	120,000
2200 — 2700	140,000
2700 — 3100	160,000
3100 — 3600	180,000
3600 — 4000	200,000
4000 — 4500	220,000
4500 — 5000	240,000
5000 — over	250,000 *Maximum*

NOTE. The formula and graph correct any discriminations which would otherwise exist between an agent whose business is 100 per cent fire insurance and another whose fire-insurance business is only a small part of his entire business, such as a real-estate dealer or an agent who writes fire insurance as a side line only. As policies are written in multiples of $10,000, each agency is given the allotment nearest the even amount resulting from the formula.

Other Types of School-Property Insurance

Of course fire is by far the largest hazard to which school property is subjected. There are, however, other hazards of which the following are the chief ones: windstorm, cyclone, hurricane, tornado, steam boiler, water, and plate glass. Still other types of insurance are rental, liability, and burglary and theft. A word on each of these types of insurance will have to suffice.[1]

Tornado. Windstorm, cyclone, hurricane, and tornado insurance is frequently carried in the fire-insurance policy. Of course destruction by one of these agencies is of infrequent occurrence compared with fires, but once in a while one of them comes and does a large amount of damage. In such instances an insurance policy covering the damage would be welcome.

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[1] For a more complete discussion of these miscellaneous types of insurance the reader is referred to S. S. Huebner's book *Property Insurance*, pp. 563–576.

Boiler. This insurance usually guarantees to pay for any damage (caused by explosions) to the boiler, the school property, neighboring property, or any indemnity allowed for injury or loss of life.

Water. Water insurance covers any damage due to water. The bursting of a water pipe or sprinkler on the upper floors of a building could do much damage before it was discovered and repaired. Damage from water used in quenching a fire is usually covered in the fire-insurance policy.

Rental. Rental insurance insures against the loss caused by inability to conduct business after a fire, a tornado, or other catastrophe. Many private schools, particularly, feel that it is necessary to carry this type of insurance to protect them from loss of income.

Liability. Liability insurance generally guarantees the defense of suits against the insured which are instigated because of injury or death on or near the property of the insured. Many boards of education carry such insurance on their school busses and automobiles. Such insurance is required of all school-transportation contractors in New Jersey.

Plate glass. In plate-glass insurance the insurer guarantees either to replace the broken glass with another as good or to pay the actual value of the glass. The glass insured is, of course, specified in the policy, and breaking must be the result of accident.

Burglary. Burglary insurance protects the insured against losses from theft or burglary or destruction of property by anyone in an attempt to commit a theft or burglary.

An Insurance Register

School officials who have much property to insure will do well to keep an insurance register. Such a register becomes a ready reference index to insurance matters. A register such as that exhibited in Fig. 37 would serve the purpose very well and would require only a few minutes to keep.

No. of Policy	Name of Company	Name of Agent	Date of Issuance	Date of Expiration	Amount of Policy	Rate	Premium	Name of Property Covered	Kind of Insurance	Remarks

FIG. 37. Suggestive form for an insurance register

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THOMAS, R. H. "Fire Insurance in Public Schools," *American School Board Journal* (September, 1918), Vol. LVII, pp. 35–37.

One of the most practical discussions of the subject; recommends community insurance of school buildings for the large cities.

"Fire Insurance for School Property," *American School Board Journal* (April, 1925), Vol. LXX, pp. 101–102.

A brief summary of an investigation by the school-board secretaries of Pennsylvania; concludes that insurance premiums in that state are too high.

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These volumes discuss casualty and surety insurance.

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A brief discussion of how to protect school buildings from fire and how to conduct a fire-prevention day.

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Contains much material on fire prevention.

CHAPTER XV

TAKING THE SCHOOL INVENTORY

An Inventory Defined

An inventory is a list of the movable property belonging to a plant. Most accountants are agreed that a school inventory should include such property as playground apparatus, desks, tables, chairs, filing cases, bookcases, portable blackboards, typewriters, mimeograph machines, projectoscopes, manual-training equipment, laboratory apparatus, wall pictures, books, and maps. In taking an inventory, most accountants list only those items whose period of usefulness exceeds one year. Items whose life is less than one year are generally regarded as supplies, and most accountants do not deem it worth while to list them. Moreover, it is generally agreed that the inventory should not include materials which form integral parts of the building and site; for example, it should not include such items as shrubbery, fences, sidewalks, drains, doors, windows, radiators, boilers, stokers, toilet fixtures, lighting fixtures, lockers, drinking fountains, window shades, and built-in cabinets.

Reasons for Taking an Inventory

Although every well-organized business periodically takes an inventory, usually annually, only a few school systems do so. In an investigation which the writer made during the school year 1926, he found that less than 5 per cent of the school systems of Ohio take an inventory; only a few of the city schools do so, and none of the rural and village schools. No data are available to lead us to conclude that school systems in other states are more accustomed to take inventories than those in Ohio.

Although the schools are not organized for profit, and notwithstanding the fact that the taking of an inventory requires a small amount of time and some expense, nevertheless every school system should regularly take one. The equipment of a school system cannot be properly accounted for without a systematic checking. Following are the reasons for taking a school-property inventory:

1. It helps to prevent the loss of property through theft and misplacement. In the United States the value of stolen and misplaced school property probably amounts to millions of dollars annually. The regular taking of an inventory gives school employees a keener feeling of responsibility for the care of public property — a feeling akin to that which prevails for private property. In school systems which do not make a regular accounting of school property, much property is stolen or misplaced and school officials often do not become aware of the loss. If the inventory did no more than to apprise school employees and officials of the property which has been stolen or misplaced, it would justify itself, for steps would probably be taken to prevent the loss of more property and means would be devised to recover, if possible, the property that had been lost. In the care of school property the saying that "Everybody's business is nobody's business" is almost proved. A regular and systematic inventory makes the care of such property "somebody's business."

2. It aids in making a replacement of any item of equipment which has become obsolete, worn out, defective, stolen, or misplaced. In addition to indicating the need for a replacement, it facilitates the making of the replacement,

because in an efficient inventory a permanent record is kept of such data as the name and address of the vendor of the article, the date of purchase, and the purchase price. In addition to facilitating the replacing of equipment, the inventory is often the means of ascertaining any equipment which needs repairs and any that has been abused in usage.

3. It indicates the value of school property and thereby furnishes a basis for determining the amount of insurance to carry. Moreover, in case of fire, theft, or other damage to or loss of property against which insurance has been placed, it is of inestimable assistance in making the settlement with the insurance company or companies. Without an inventory the value to be placed on property for insurance purposes must be determined largely on a basis of guess; moreover, the settlement with the insurance company or companies, in case of loss, must be made on a basis of memory or guess. The inventory places such matters on a business basis by making them a matter of written record.

4. It helps to prevent the purchasing of unnecessary equipment. It does this by showing the amount of equipment of each kind which is on hand. Moreover, it indicates the location of the equipment, thus enabling a more complete use of the equipment either in its present location or elsewhere in the system. Without a knowledge of the amount of equipment on hand and the location of it, two mimeograph machines, for example, might be purchased when one would be sufficient for the needs of the entire system.

5. It assists in calculating school costs. Whereas in former days of school financial accounting, no charge on capital outlays was made in calculating costs, there is to-day a tendency to include both an interest and a depreciation charge on capital outlays in calculating costs. The making

of such charges should become everywhere the practice, for unless they are included, all items of school expense are not considered. The amount of interest to be charged annually, and the amount of depreciation to be written off annually, cannot be determined without knowing the amount of capital outlay. An inventory is indispensable in helping to determine the present value of the capital investment. For example, how can the per pupil tuition which should be charged another school district be accurately determined without taking account of capital outlays? In calculating school costs the use of methods akin to legerdemain has been all too prevalent.

When to take the Inventory

Just as the progressive merchant has a definite time to inventory his equipment and stock of goods, so it is advisable for school officials to have a definite time to inventory school equipment. In private enterprises the inventory is usually taken annually. Progressive school officials usually find such an interval to be the best. Of course, a biennial or a triennial inventory is infinitely better than no inventory.

Since the inventory often aids in the purchase of equipment, and since practically all other reports and accountings are made at the close of the school year, the close of the school year is probably the best time for taking the inventory. Most of the progressive school systems take it at that time. A few take another immediately after the opening of school in the fall, so that any thefts or misplacements which have occurred during the summer vacation can be detected. If, however, the buildings and rooms are kept properly locked, the spring inventory suffices for all practical purposes.

What to include in the Inventory

In the first paragraph of this chapter was stated in general terms what an inventory should include. To review, it was said that it should include items of equipment of a movable nature. It should not include items which form an integral part of the building and site, nor should it include supplies—that is, materials whose period of usefulness is very short, as a year or two only.

Most school systems which take a systematic inventory charge items of small cost and rapid depreciation, likewise supplies that can be used only once or a few times, to current expenses. By charging such items to current expenses the property register is greatly simplified and deflated, and much less time is required to make the annual accounting of property. Gary, Indiana, a city which has organized an efficient inventory system, recommends that such items as the following be omitted from the property register and from the annual checking: brushes, chemical equipment (beakers, test tubes, flasks, etc.), coal scuttles, drill bits, dust pans, garden tools (hoes, rakes, etc.), hammers, mop-wringers, pails, pencil-sharpeners, punches, scissors, screwdrivers, shovels, tubing (glass or rubber), and yardsticks.

In keeping its property register and in making the annual check of equipment, Ohio State University has defined "equipment as being those items of a more or less permanent nature above a two-dollar value." That institution has arranged for a blanket classification of many items of more or less permanence, but of low cost. The directions of the inventory department regarding blanket classifications are as follows:

> In the past, too strict adherence to standard classification has either caused an unnecessary posting and inflated record and a waste of time during checking, or it has been necessary to remove equip-

ment from the inventory entirely and thus admit that our present system was inadequate. In the future, under the blanket classifications, vouchers covering those items need not be classified. The loss of data for each purchase by this grouping is insignificant because of the replaceable nature of this equipment.

Three general classes of equipment require this special cover-card classification, namely:

1. Valuable equipment of fragile nature.
2. Definite sets or outfits of small equipment.
3. Miscellaneous kinds of frequently replaced equipment.

Under the first class is grouped such equipment as radio tubes, X-ray tubes, and lantern slides. The large value and distinct equipment nature is sufficient to offset the argument that they are too fragile to be classified. Moreover, their use in rather definite numbers makes the cover-card system possible and highly practical. Lantern slides may be considered like tubes, for although the unit value is small, there are approximately twenty thousand dollars worth on the campus which are being used every day as equipment for instruction, so that no real classification of departmental equipment can rightfully exclude them. The infeasibility of attempting to identify each slide or each group of slides has long since been proved. To list those found during a department inventory on one card at a standard value of one dollar per unit is, we believe, reasonable both from the standpoint of actual status of equipment and efficient inventory principles. Subsequent checking may require additional cards to cover new additions.

In the second class is grouped such equipment as sets of tools, china and silverware, beds and bedding. In several of the departments student work-benches are furnished with very definite sets of tools. These tools are continually being broken and replaced from the supply stock. In such cases, it greatly simplifies rechecking to concern ourselves with the benches regarded as being constantly completely equipped. China and silverware are very definitely equipment in many departments and their original purchases can best be covered by one card, future purchases being replacements.

Under the third class may be grouped a miscellaneous assortment of equipment generally replaced by pro rata funds, such as batteries, pruning saws, shears, contact keys, and muscle apparatus.

The Property Register

The first step in establishing an inventory system is to provide for an equipment register. As soon as an article of equipment is purchased, certain data concerning it should be recorded in the property register. When this has been done, the register becomes a permanent record of the equipment belonging to the school system. The register should contain a column for each of the following items of information: name of article; name of vendor; building, room, or department for which the equipment was purchased; cost; date of purchase; depreciation rate in per cent; and amount of depreciation by years (there should be at least twenty-five columns for listing the annual depreciation).

When the property register has been established it becomes the property ledger of the school system, and the only task that remains is to keep it up to date. If the school system has never kept a property register, it will, of course, need to make a careful appraisal of all property in order to start the register; the first accounting of equipment, for the purpose of starting the register, should be made by persons who know the value of school equipment.

Methods of Taking the Inventory

As to who should take the inventory, two methods are in vogue. One practice is to have a clerk or clerks visit the buildings and list or check all equipment; this method, however, is infrequently used. The second practice is to give to teachers, heads of departments, or principals of buildings the job of making the list or check; this method is almost universally used. The first method has the advantage of placing the work in the hands of one or a few persons and permits such individuals to specialize in the work. The second method has the merit of requiring no extra expense, since the regular employees of the school do the work without extra pay; moreover, this method gives the regular employees a keener feeling of responsibility for school property.

Herewith are described briefly how one school system uses one of the methods mentioned above in taking its inventory and how another uses the other method. First (for convenience, called "Plan One"), how Ohio State University uses special clerks in taking its inventory will be described.

Plan One. The inventory record at Ohio State University is kept in accordance with rules and regulations adopted by the Board of Trustees. Because they suggest some of the matters which should be included in a set of inventory rules and regulations, they are quoted here:

> The Business Manager shall keep a complete inventory of all university property. He shall furnish the head of each department with a duplicate of his departmental inventory, which shall be carefully kept and preserved by the department.
>
> The head of each department is responsible to the Board of Trustees for the preservation and safekeeping of all equipment under his charge and listed in his departmental inventory.
>
> He shall report to the Business Manager each gift of apparatus or equipment made by his department, with the estimated commercial value, as soon as the same has been received.
>
> He shall report to the Business Manager each piece of apparatus or equipment made in his department, with its estimated commercial value, as soon as the same is completed.
>
> He shall not destroy or dispose of any items contained in the inventory, but shall report all worn-out or broken items to the Business Manager.
>
> He shall check each item of his inventory at least once each year with the inventory clerk.
>
> The disposition of all property shall be upon order of the Board of Trustees.

A card system is used for the inventory, with the cards serving as a ledger. The journal entry is made in an equipment register which contains the following column headings: name of department; date of purchase of article; name of article; vendor of article; voucher number; order number; serial number; manufacturer's number; cost of article; remarks. Ohio State University does not figure depreciation. The journal entry is made from the bills when the equipment is purchased. These bills are classified by the bookkeeper as to equipment and supplies, and items of equipment are entered on the journal in the order of their purchase. As has been previously said, supplies are not listed in the register or inventory. A university serial number is then assigned to each item of equipment.

The cards (a separate card is made for each item of equipment) are made up from the journal entry and are filed by departments in the inventory headquarters; at present, there are one hundred and thirteen departments in the university. One copy of the card record is kept in the office of the inventory department and a duplicate is sent to the department concerned for its files. The departments of the university are directly responsible for their equipment. Fig. 38 shows a copy of the inventory card.

The second phase of the inventory system is the placing of the university serial number on the equipment. On each item of furniture a small brass tab, properly numbered, is placed in an inconspicuous place. On machinery and metal equipment the number is painted. On delicate instruments engraving tools are used to place the number. The numbering is done by one of the inventory clerks, who makes the round of the departments once a month.

The third phase of the inventory work is the annual check of the equipment of each department by the inventory clerk with the aid of the head of the department. Each item is checked against the card record, which the inventory clerk brings with him from the inventory department. At that time, articles which need to be disposed of are recommended for cancellation from the record and a record of the disposition of any article is made; for example, "transferred," "missing," "worn out," "broken," "obsolete," etc.

The personnel needed to maintain the system described above is composed of five persons: a chief clerk, a stenographer, a bookkeeper, a technician, and a checker. The three last named are employed from the ranks of the students of the university and devote only part time to the work.

Dept. ______________ Item ______________________
From Whom Purchased ____________________________
Voucher No. _________ Date _________ Cost _________
Order No. ______________________________________
Serial No. ______________ Mfr. No. ______________
Remarks: _______________________________________
____
____
____
Date Marked: ___________________________________

Fig. 38. Ohio State University inventory card

Plan Two. Instead of having someone from the central office take the inventory throughout the school system, most school systems have arranged for teachers, heads of departments, and principals — persons who have the immediate responsibility for caring for the equipment — to take the inventory in their rooms, departments, or buildings. With proper forms and explicit directions, teachers and similar employees can accurately inventory in a few minutes the equipment under their jurisdiction.

A few school systems make the school building the unit for the inventory and make the principal personally responsible for taking it. Chicago adopted this plan in 1926. School officials of that city claim that the plan of making the school building the inventory unit has the advantage of permitting full circulation of equipment from room to room. Below are quoted some of the more pertinent inventory regulations of the Board of Education of Chicago:

> Accountability and responsibility devolve upon the principal or bureau chief to whom equipment is entrusted. . . . Accountability and responsibility cease only when a receipt is secured from a successor. (A special receipt form is provided for this.)
>
> The principal shall designate one to act as property officer for the school (the assistant principal is suggested), his or her name to be certified to the Bureau of Real Estate and Inspection. In places other than schools, the Inspector of School Property shall designate the person who shall act as property officer.
>
> All persons charged with the care and preservation of equipment shall be responsible for any loss, destruction, or damage other than customary wear and tear or otherwise unaccountable losses, and such responsibility shall be relieved only by report on investigation by the Bureau of Real Estate and Inspection, which shall determine the money value thereof, approved by the Board of Education.
>
> The property officer responsible for every item of equipment shall enter on his list every item received and every item from time to time disposed of and the quantity on hand at the end of each school year.
>
> When equipment arrives at the school or elsewhere the property officer shall check it in and sign for it.
>
> On June 1 of each year, under the direction of the principal or property officer, a physical inventory shall be taken recording each quantity on hand on the equipment inventory form in columns provided. Such inventory form shall be signed by the property officer and forwarded to the Bureau of Real Estate and Inspection.

Following the regulations given above, which are included in the Chicago Inventory Book, is a list of specific instructions on how to take the inventory. Following these instructions come the inventory forms, of which there are seventy-two pages in each Inventory Book. One of the forms is shown in Fig. 39. The seventy-two pages of forms are exactly alike, except for column 1; that column lists every imaginable item of school equipment from adding machines to xylophones. These forms, with the rules and regulations governing the inventory, are bound in book form, one book for each school or bureau.

Most school systems, however, take their inventory by rooms rather than by buildings. Under such plan teachers and similar employees usually have the responsibility for the listing or the checking of equipment. G. D. Strayer and N. L. Engelhardt have designed inventory books which are widely used under this plan.[1] In this series there are three books for various sizes of elementary schools, also a high-school book; moreover, the books have different forms for the various rooms and departments. In Fig. 40 is shown a sample page from one of the books for elementary schools.

Figuring Depreciation

Definition of depreciation. Depreciation in a general sense means a decrease in value, — that is, a deterioration. More specific definitions are "expired capital outlay"; "the loss, arising from years of service, in the value of the investment in perishable property"; "a decrease in financial value, generally represented by the difference between original cost and scrap salvage, if any." Thus, if a plant originally cost $100,000 and its scrap value ten or twenty years later was $5000, the depreciation on the plant is the difference between $100,000 and $5000, or $95,000.

In connection with the discussion of the "Maintenance of the School Plant," in Chapter XII, it was stated that depreciation of the plant is continually in progress. In

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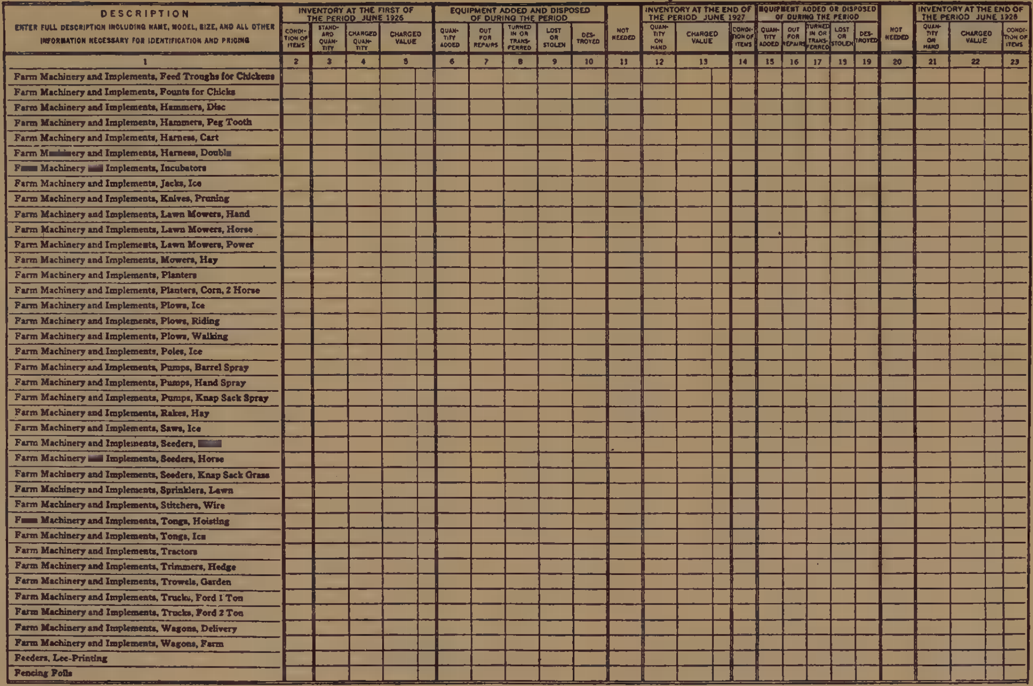
[1] Published by C. F. Williams and Son, Albany, New York.



DESCRIPTION	INVENTORY AT THE FIRST OF THE PERIOD JUNE 1926				EQUIPMENT ADDED AND DISPOSED OF DURING THE PERIOD						INVENTORY AT THE END OF THE PERIOD JUNE 1927			EQUIPMENT ADDED OR DISPOSED OF DURING THE PERIOD						INVENTORY AT THE END OF THE PERIOD JUNE 1928		
ENTER FULL DESCRIPTION INCLUDING NAME, MODEL, SIZE, AND ALL OTHER INFORMATION NECESSARY FOR IDENTIFICATION AND PRICING	CONDITION OF ITEMS	STANDARD QUANTITY	CHARGED QUANTITY	CHARGED VALUE	QUANTITY ADDED	OUT FOR REPAIRS	TURNED IN OR TRANSFERRED	LOST OR STOLEN	DESTROYED	NOT NEEDED	QUANTITY ON HAND	CHARGED VALUE	CONDITION OF ITEMS	QUANTITY ADDED	OUT FOR REPAIRS	TURNED IN OR TRANSFERRED	LOST OR STOLEN	DESTROYED	NOT NEEDED	QUANTITY ON HAND	CHARGED VALUE	CONDITION OF ITEMS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	13	19	20	21	22	23
Farm Machinery and Implements, Feed Troughs for Chickens																						
Farm Machinery and Implements, Founts for Chicks																						
Farm Machinery and Implements, Hammers, Disc																						
Farm Machinery and Implements, Hammers, Peg Tooth																						
Farm Machinery and Implements, Harness, Cart																						
Farm M[redacted]ery and Implements, Harness, Doubl[redacted]																						
F[redacted] Machinery [redacted] Implements, Incubators																						
Farm Machinery and Implements, Jacks, Ice																						
Farm Machinery and Implements, Knives, Pruning																						
Farm Machinery and Implements, Lawn Mowers, Hand																						
Farm Machinery and Implements, Lawn Mowers, Horse																						
Farm Machinery and Implements, Lawn Mowers, Power																						
Farm Machinery and Implements, Mowers, Hay																						
Farm Machinery and Implements, Planters																						
Farm Machinery and Implements, Planters, Corn, 2 Horse																						
Farm Machinery and Implements, Plows, Ice																						
Farm Machinery and Implements, Plows, Riding																						
Farm Machinery and Implements, Plows, Walking																						
Farm Machinery and Implements, Poles, Ice																						
Farm Machinery and Implements, Pumps, Barrel Spray																						
Farm Machinery and Implements, Pumps, Hand Spray																						
Farm Machinery and Implements, Pumps, Knap Sack Spray																						
Farm Machinery and Implements, Rakes, Hay																						
Farm Machinery and Implements, Saws, Ice																						
Farm Machinery and Implements, Seeders, [redacted]																						
Farm Machinery [redacted] Implements, Seeders, Horse																						
Farm Machinery and Implements, Seeders, Knap Sack Grass																						
Farm Machinery and Implements, Sprinklers, Lawn																						
Farm Machinery and Implements, Stitchers, Wire																						
F[redacted] Machinery and Implements, Tongs, Hoisting																						
Farm Machinery and Implements, Tongs, Ice																						
Farm Machinery and Implements, Tractors																						
Farm Machinery and Implements, Trimmers, Hedge																						
Farm Machinery and Implements, Trowels, Garden																						
Farm Machinery and Implements, Trucks, Ford 1 Ton																						
Farm Machinery and Implements, Trucks, Ford 2 Ton																						
Farm Machinery and Implements, Wagons, Delivery																						
Farm Machinery and Implements, Wagons, Farm																						
Feeders, Lee-Printing																						
Fencing Polls																						

FIG. 39. A sample page from the Chicago Inventory Book

that chapter, moreover, the causes of depreciation were discussed; to review, these causes are the wear and tear of use, decrepitude, obsolescence, and accidents.

Purpose of figuring depreciation. Depreciation of the school plant must be figured in order that the present value of the plant and the cost of operating it may be known. In the field of industry depreciation is usually regarded as an element of cost; moreover, the courts generally have decreed that a depreciation charge on capital outlays may be made in estimating operating costs. R. B. Kester[1] has the following to say on the necessity of including depreciation in calculating operating costs:

> Depreciation is one of the costs of production, and without it true cost cannot be shown. Failure to show depreciation on the books would justify also the omission of a cash-income item, because the cash was to be spent immediately in payment of salaries — a cancellation outside the business records of income against expense which can under no circumstance be justified.

What Kester says of depreciation as an expense in an industrial plant is applicable to the school plant. Yet a school system which has an up-to-date plan of figuring depreciation and makes use of depreciation data in calculating operation costs is almost unknown. In this matter public institutions have not kept pace with industrial concerns.

All accountants recommend the systematic charging of depreciation. Such charging begets the following advantages: (1) the cost of the disappearing assets during any year is included in the operating cost for that year (the inclusion of this item is necessary if cost data are to be correct and comparable); (2) dissipated assets are eliminated from the capital account, thus enabling the preparation of accurate and significant balance statements.

Someone has remarked that "depreciation and deprecia-

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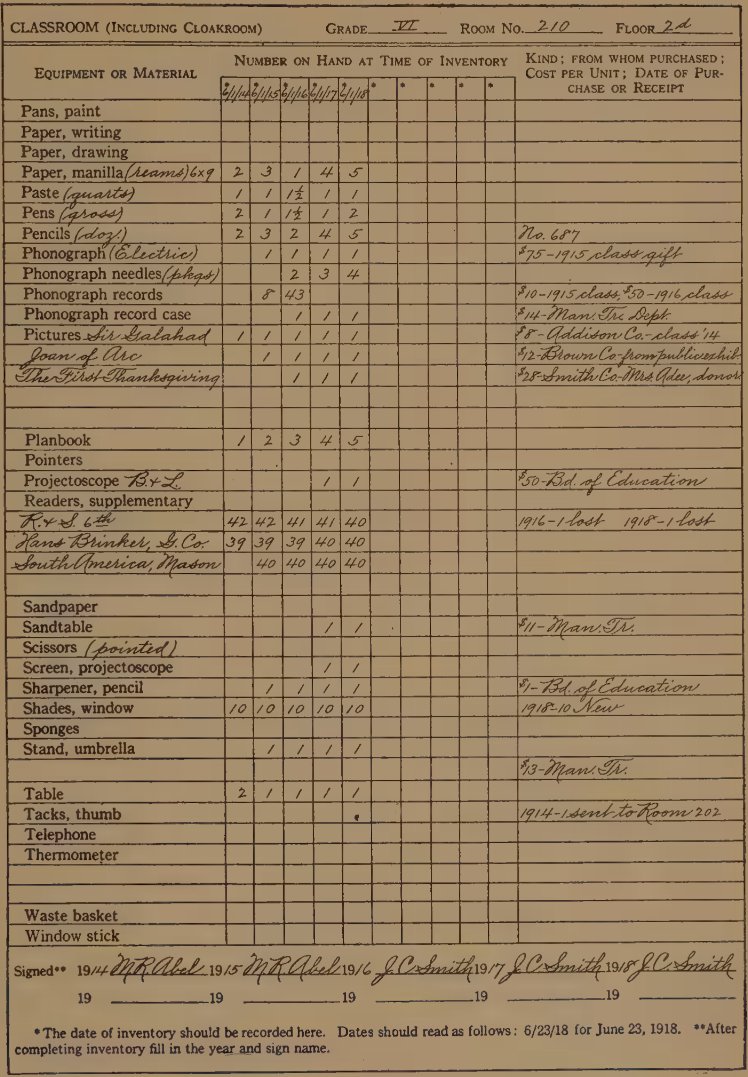
[1] *Depreciation*, p. 99.



CLASSROOM (INCLUDING CLOAKROOM) GRADE VI ROOM NO. 210 FLOOR 2d

EQUIPMENT OR MATERIAL	NUMBER ON HAND AT TIME OF INVENTORY										KIND; FROM WHOM PURCHASED; COST PER UNIT; DATE OF PURCHASE OR RECEIPT
	*6/1/14	*6/1/15	*6/1/16	*6/1/17	*6/1/18	*	*	*	*	*	
Pans, paint											
Paper, writing											
Paper, drawing											
Paper, manilla (reams) 6x9	2	3	1	4	5						
Paste (quarts)	1	1	1½	1	1						
Pens (gross)	2	1	1½	1	2						
Pencils (doz.)	2	3	2	4	5						No. 687
Phonograph (Electric)		1	1	1	1						$75-1915 class gift
Phonograph needles (pkgs)			2	3	4						
Phonograph records		8	43								$10-1915 class; $50-1916 class
Phonograph record case			1	1	1						$14-Man. Tr. Dept.
Pictures Sir Galahad	1	1	1	1	1						$8-Addison Co.-class '14
Joan of Arc		1	1	1	1						$12-Brown Co.-from public exhib.
The First Thanksgiving			1	1	1						$28-Smith Co.-Mrs. Adee, donor
Planbook	1	2	3	4	5						
Pointers											
Projectoscope B.&L.				1	1						$50-Bd. of Education
Readers, supplementary											
R.&S. 6th	42	42	41	41	40						1916-1 lost 1918-1 lost
Hans Brinker, G. Co.	39	39	39	40	40						
South America, Mason		40	40	40	40						
Sandpaper											
Sandtable				1	1						$11-Man. Tr.
Scissors (pointed)											
Screen, projectoscope				1	1						
Sharpener, pencil		1	1	1	1						$1-Bd. of Education
Shades, window	10	10	10	10	10						1918-10 New
Sponges											
Stand, umbrella		1	1	1	1						
											$13-Man. Tr.
Table	2	1	1	1	1						
Tacks, thumb											1914-1 sent to Room 202
Telephone											
Thermometer											
Waste basket											
Window stick											

Signed** 1914 M.R. Abel 1915 M.R. Abel 1916 J.C. Smith 1917 J.C. Smith 1918 J.C. Smith

19 ______ 19 ______ 19 ______ 19 ______ 19 ______

*The date of inventory should be recorded here. Dates should read as follows: 6/23/18 for June 23, 1918. **After completing inventory fill in the year and sign name.

FIG. 40. Sample page of inventory with records properly inserted

tion reserves are as necessary to a system of accounts as a foundation is to a new building." In spite of the facts that the schools are not manufacturing articles which must sell in competition, that the rate of depreciation cannot be predetermined with accuracy, and that accountants do not agree on the depreciation rate — in spite of all these arguments, which are frequently advanced against the charging of depreciation, the benefits of the charging clearly overbalance the trouble and expense.

Methods of figuring depreciation. In attempting to figure depreciation three problems immediately arise: (1) the determination of the depreciation base; (2) the fixing of the depreciation rate; and (3) the estimating of the scrap, or residual, value of the property.

For the depreciation base most accountants recommend that the *original* cost of the property be used. The fixing of the depreciation rate is, however, a matter which baffles the judgment. On the difficulties of fixing the depreciation rate, Kester says:[1]

> The determination of the rate of depreciation of a given asset is essentially an engineering problem. . . . Much study and effort to reduce all the conditions under which assets depreciate to a common basis and so to a definitely stated rate for each set of conditions, have so far come to naught, and all qualified experts say without reserve that the rate of depreciation is an individual problem.
>
> Many factors enter into the rate of depreciation. They may be classed roughly as "stable or normal" factors and "contingent" factors. It should be constantly borne in mind that in the present state of actuarial development of the subject, general rates, i. e., rates which apply without readjustment, cannot be determined. For the determination of individual rates local conditions are always the controlling factor. Until these can be somewhat standardized, there is no hope of establishing rates of depreciation which will be of general application.

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[1] *Depreciation*, pp. 35, 36.

Although all accountants agree that the determination of the depreciation rate must be made largely on a basis of opinion, they nevertheless agree that a rate should be fixed. Regarding the rate of depreciation that should be set for school buildings, it might well be determined by the type of construction. On the basis of the kind of materials used in their construction, the American Institute of Architects has grouped school buildings under the following five types:

Type A. A building constructed entirely of fire-resistive materials, including its roof, windows, doors, floors, and finish.

Type B. A building of fire-resistive construction in its walls, floors, stairways, and ceilings, but with wood finish, wood or composition floor surface, and wood roof construction over fire-resistive ceiling.

Type C. A building with masonry walls, fire-resistive corridors and stairways, but with ordinary construction otherwise, that is, combustible floor, partitions, roofs, and finish.

Type D. A building with masonry walls, but otherwise ordinary, or joist, construction and wood finish.

Type E. A frame building constructed with wood above foundation, with or without slate or other semi-fireproof material on roof.

For the types of buildings mentioned above, the following estimates of life and of annual-depreciation rates are tentatively proposed:

TYPE OF BUILDING	ESTIMATED LIFE	ANNUAL-DEPRECIATION RATE
	Years	*Per Cent*
A	60	1⅔
B	60	1⅔
C	40	2½
D	30	3⅓
E	20	5

According to generally accepted principles of accounting, land neither increases nor decreases in value; therefore no depreciation on it is figured. Improvements on the land (for example, fences, walks, and drainage systems) do depreciate and must be repaired and replaced; for these a depreciation rate of 4 per cent annually is tentatively proposed.

As to the depreciation rate for equipment, it might be well to set one rate for all classes of equipment. Industrial concerns usually figure the life of their furniture at ten years. The same furniture in the schools is, however, likely to be serviceable for twenty or twenty-five years. Many items of school equipment, however, are serviceable for only two, five, or ten years. An annual depreciation rate of 10 per cent to cover all classes of school equipment is tentatively proposed.

Most accountants use one of two methods in figuring depreciation. These are (1) the straight-line method and (2) the reducing-balance method. For purposes of notation and reference the following symbols are used in the two formulas:

x = the amount of depreciation in dollars at the end of a given period.
v = the original cost.
v_1 = the salvage value.
n = length of expected service life in years.
t = length of service to date in years.

The straight-line method is the simplest method and is generally used. Its essence is that it distributes the depreciation evenly over the number of years of service estimated. Thus, an asset whose service life is estimated to be twenty years will have depreciated one twentieth by the end of the first year, two twentieths by the end of the second, and so on. The formula for the straight-line method may be expressed as follows:

$$x = \frac{(v - v_1)t}{n}.$$

By using the foregoing formula, an appraisal schedule for a given asset may be made which will show the value of the asset at the end of each year of its estimated life. For an asset costing $950, whose service life is five periods and whose scrap value is $50, the appraisal schedule would be as shown in Table VIII.

TABLE VIII. A SAMPLE APPRAISAL SCHEDULE BASED UPON THE STRAIGHT-LINE FORMULA

Age in Periods	Periodic Depreciation	Depreciated Value	Total Accumulated Depreciation
0	$—	$950	$—
1	180	770	180
2	180	590	360
3	180	410	540
4	180	230	720
5	180	50	900

The reducing-balance method writes down rapidly the value of the asset during the first years of service. Thus, if the asset cost $1000 and the depreciation rate is 10 per cent, the first depreciation would amount to $100, giving a remaining value of $900 for the asset. The depreciation for the second year would be 10 per cent of $900, or $90, leaving a remaining value of $810. The formula for this method may be expressed as follows:

$$x = \left(1 - \sqrt[n]{\frac{v_1}{v}}\right)t.$$

In using this formula it is apparent that a zero value can never be reached. For an asset costing $150 and having an estimated life of five years and a scrap value of $50, the rate of depreciation is approximately 19.726 per cent. The appraisal schedule for such an asset would be as indicated in Table IX[1] on the following page.

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[1] R. B. Kester, *Depreciation*, p. 51.

TABLE IX. A SAMPLE APPRAISAL SCHEDULE BASED UPON THE REDUCING-BALANCE FORMULA

Age in Periods	Fixed Depreciation Rate (Per Cent)	Periodic Depreciation	Depreciated Value	Total Accumulated Depreciation
0	——	$——	$150.00	$——
1	19.726	29.59	120.41	29.59
2	19.726	23.75	96.66	53.34
3	19.726	19.07	77.59	72.41
4	19.726	15.32	62.27	87.73
5	19.726	12.27	50.00	100.00

SELECTED REFERENCES

ALLEN, J. E. "Placing School-Building Insurance," *American School Board Journal* (March, 1919), Vol. LVIII, pp. 38–39.

Describes a straight-line method for figuring depreciation.

BELL, A. H. "Depreciation and Other School Costs," Proceedings of the Thirteenth Annual Meeting of the National Association of Public-School Business Officials (1924), pp. 52–60.

An argument for making a charge for depreciation in calculating school costs.

KESTER, R. B. *Depreciation* (Ronograph Library, No. 28). The Ronald Press Company, New York, 1924. 105 pp.

Discusses such topics as the causes of depreciation, factors in rate determination, methods of calculating depreciation, and recording depreciation on the books.

KILDUFF, F. W. *Inventory Practice and Material Control.* McGraw-Hill Book Company, 1925. 446 pp.

Part I, pp. 1–306, discusses the function of the inventory in commercial establishments and how to take it; much of the discussion is applicable to the school inventory.

SALIERS, E. A. *Depreciation: Principles and Applications.* The Ronald Press Company, New York, 1923. 590 pp.

Chapters VII and VIII, pp. 129–179, discuss methods of figuring depreciation.

CHAPTER XVI

ADMINISTRATION OF SCHOOL SUPPLIES

The Problem of Supplies

Materials which are consumed or destroyed when they are used, such as ink, paper, fuel, crayons, and record forms, are classed as school *supplies*. Generally speaking, their normal life is only a few months, or at the longest a year or two. School *equipment*, on the other hand, includes materials of a somewhat permanent nature which are not consumed or destroyed as they are used and therefore do not require frequent replacement. Furniture, typewriters, maps, shop equipment, and laboratory apparatus are examples of the more permanent school furnishings.

Proper supplies must be furnished the various school departments on time and systematically if the schools are to function efficiently. Before supplies may be made available for use in the schools, numerous duties must be performed, such as the standardizing, purchasing, storing, requisitioning, delivering, and accounting of all the materials. Procuring the most economical employment of supplies is also a part of this work, which constitutes one of the major problems in the administration of a school system.

Purchase of Supplies

In every school system the purchasing procedure should be so organized that proper supplies will be secured at the lowest possible cost. Chief among the matters that must be decided in the selection and purchase of supplies are those regarding the kind and amount to purchase, the place and time to purchase, the time to settle the accounts, the means for checking amounts and quality, and the proper steps in letting of bids. Each of these matters will be treated here in brief.

Determining Kind and Amount

Kind. The kind of supplies to be used within a school system should be standardized as much as possible. As a first step in standardization, the school system should prepare and maintain for its guidance a standard list of the supplies which it uses. In this list each item should be indexed to show such facts as the school grade or department in which the material is to be used. Of course the list will have to be revised from time to time to keep it up to date, for many school supplies, like other materials, soon become obsolete.

The use in the various school buildings of supplies that are generally similar but slightly different in detail should be avoided wherever possible. Standardization of supplies is recommended because it permits purchasing in larger quantities, which usually effects a considerable saving in price. Advantages in using only one or two kinds of penmanship paper, one or two kinds of blackboard crayons, — in fact, one or two kinds of any item of supplies, — will be obvious to the school-administrator.

The advantages of standardization of supplies were soon discovered by the United States government during the World War. For a time after the United States entered the war, little attempt was made by the officials to standardize supplies. In those days several kinds of cloth for soldiers' uniforms were used, and a similar practice with reference to other supplies was followed. After the Federal government was enabled, by the policy of standardization, to purchase in larger quantities, millions of dollars were undoubtedly saved.

A disadvantage in standardizing supplies is that standardization occasionally prevents fulfilling individual needs. For example, a certain school building might have blackboards that would not permit the use of as hard chalk as would the blackboards of other buildings. A soft grade of chalk might be necessary for the blackboards of this building, whereas a hard grade would be better for the blackboards of other buildings. Standardization, although it is generally desirable, should not be carried so far as to hamper the service at any point or in any way.

The quality of materials should be high enough to meet the needs of the service, but not any higher than this; for example, the use of embossed paper in penmanship classes would be wasteful. Unfortunately little experimentation has yet been done to ascertain the best kind of supplies for a particular service. Experimentation and critical examination of various samples of a given supply item are necessary, however, if the best quality for the money available is to be selected.

In determining the kind and quality of supplies to be purchased the educational and the business departments should maintain close coöperation. The educational department probably knows more about the kind and the quality of educational supplies than the purchasing department. Likewise the operation and the maintenance departments probably know more about the kind and the quality of supplies for those departments than does the purchasing department. The members of the purchasing department are of course better informed on the cost of materials and the status of the supplies budget than any other members of the administrative personnel.

Committees which represent the departments most vitally concerned should be appointed to assist in the selection of supplies. A committee on educational supplies might appropriately consist of a few classroom teachers, supervisors, principals, and a representative of the business department, provided, of course, the school system is large enough to maintain the latter department. The members of a committee on operation supplies might appropriately be janitors and principals and a representative of the business department.

In no event should the business department select supplies without consulting those who have to use the materials. Representatives of the educational department know better than anyone else the relative merits of the various educational materials. Many instances might be cited of supplies that could not be used after being purchased by business departments. School supply rooms, basements, and attics are frequently cluttered with nonusable supplies.

Amount. The amount of supplies to be purchased for any year should be based on accurate information and not on snap judgment. In the first place, the new supply should be determined by the amount which was used the previous year, and by a critical appraisal of that amount to ascertain whether it was sufficient. In the second place, some provision must be made for any growth in school population, for the work of any new departments, and for any new work in old departments. Fig. 41 shows a form which may be used in making the annual estimate of supplies for an entire school or one of its departments. If such an estimate is procured from each school and division, the estimate form should be presented to the principal or division head by January 20, or approximately that date, so that sufficient time will be had to formulate the estimate and to return it to the business department by February 1, or approximately that date.

The committees which we have recommended to assist in determining the kind of supplies should also have much to say concerning the quantity to be allotted to each pupil, teacher, or department. Who knows better concerning the amount of supplies needed than those who use the supplies; that is, teachers, principals, supervisors, janitors, repair men, and similar employees? The aim should be to grant sufficient supplies for maintaining the highest efficiency possible. If too many are allowed, waste will necessarily result.

Name of School or Department ________________________

Enrollment ____________________________________

Item Number	Description of Item	Amount delivered for this Year	Probable Surplus at End of this Year	Probable Shortage this Year	Changes in Need for Next Year

Approved by ________________
Principal or Head of Department

Date __________________, 19__

FIG. 41. Annual-supply estimate for a school or department

After the amount of yearly supplies for each pupil, teacher, or department has been determined, the next matter to be settled is the quantity which should be purchased at one time. This depends upon several factors, among which are the storage space available, the budget immediately available for that purpose, and the condition of the school-supplies market. The purchase at one time of sufficient material for a year is generally regarded as the best policy, particularly for the smaller school systems. In this way lower prices will be secured, and the time of the administrative personnel which is used in making purchases and taking care of the attendant details will be saved.

The advantages of purchasing in as large quantities as possible have already been mentioned. In this connection the possibility of *coöperative* purchasing among boards of education should be considered. Coöperative purchasing might feasibly be adopted by neighboring rural boards of education, and particularly by those of the same county. So far, however, according to available facts, coöperative purchasing has been used in only a few counties of the United States. These counties report large economies accruing from this practice. A general adoption of coöperative purchasing would undoubtedly produce a saving of hundreds of thousands of dollars annually in the rural schools. Will C. Wood,[1] ex-Superintendent of Public Instruction for the state of California, has the following to say regarding the advantages of coöperative purchasing and the evils of purchasing by individual districts as practiced by the rural boards of education in his state:

> Each session of the legislature since 1917 has seen an effort made to protect the rural school districts from the plundering of their maintenance funds by certain school-supply houses through "here

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[1] Thirty-second Biennial Report of the Superintendent of Public Instruction, State of California, for the school years ending June 30, 1925, and June 30, 1926, pp. 29–30.

today and gone tomorrow" agents. The methods employed are fourfold: (1) overcharging; (2) overloading; (3) substitution of "as good as" products; and (4) making short deliveries. No fixed price is used by these agents in selling the same product to schools in the same county. The result is that the rural schools of the state are annually mulcted in the sum of many thousands of dollars. The county superintendent of San Luis Obispo County, who has introduced coöperative purchasing of school supplies in his county, estimates that at least $5000 per year is saved by lowered prices and conservative purchasing in San Luis Obispo County alone.

The following comparisons of prices are indicative of what can be done when supplies are bought through bids submitted for supplies in quantity delivered to a central depositary. These figures are taken from a report furnished by the superintendent of schools of San Luis Obispo County.

SUPPLIES	PRICES PAID BY INDIVIDUAL DISTRICTS IN 1921–1922 UNDER OLD PLAN	COÖPERATIVE BIDS FOR 1922–1923	COÖPERATIVE BIDS FOR 1923–1924
Pens, per gross	$1.50	$0.75	$0.50
Ink, per quart	1.50	1.00	.60
Paste, per pint	1.00	.65	.45
Manila drawing paper, per ream	3.25	.90	.63
Legal cap paper, per ream	5.40	2.16	1.40
Blotters, per gross	1.00	.35	.27
Cut news, per pound	.19	.05	.04¾

In addition to the prices quoted in 1921–1922 there were added delivery charges. The prices quoted in 1922–1923 and 1923–1924 are for delivery in San Luis Obispo or in the individual school districts. In the last-named year, goods were required to be delivered in San Luis Obispo so as to be sure that quantity and quality were according to bid requirements.

In his report from which the foregoing quotation is taken Wood recommended that the wholesale purchase of supplies be provided for by state law; he stated that coöperative purchasing was the only way by which wholesale purchasing could be secured in the rural schools. Acting upon his recommendation, the legislature of 1927 enacted a law which put his suggestions into complete effect. The chief part of the law (section 1780 of the California Political Code) reads as follows; such a law should be enacted by every state

> The county board of education may, on or after the first day of February, 1927, and said board must, on or before the first day of February of each ensuing year, establish rules and regulations whereby elementary-school districts governed by school trustees shall purchase standard school supplies and equipment through the county superintendent of schools or, when so directed by him, through a county purchasing agent. The county board of education shall list as standard school supplies and equipment such supplies and equipment as can be advantageously purchased in quantity.

Source of Supplies

The question of where to purchase school supplies is frequently perplexing, particularly in the school systems of small communities where the local merchant insists that he is entitled to the school business on the grounds that he is a patron of the school and a taxpayer. In these controversies the question of quality and price of material is frequently lost sight of. Too often the opinion obtains that schools exist to afford someone a livelihood or to provide someone a profit. School officials are under obligation to purchase supplies where the best qualities at the lowest prices can be procured. To do otherwise is to be guilty of misappropriation of funds. Where the amount of a certain material is sufficiently large, it may generally be purchased direct from the manufacturer at a considerable saving.

Time to Purchase and to Make a Settlement

Time to purchase. A study of the school-supplies market shows that prices of most materials are lower during certain months of the year than during other months. For example, because of a decreased demand, coal is generally from 10 to 25 per cent cheaper from April to September than at any other time during the year. Generally speaking, school supplies may be purchased in the summer months at an appreciably lower price than during the other six months. The contracts for them should therefore be placed at this advantageous season. Purchasing agents in industrial concerns study the supplies market and place their orders at the most favorable time; such policies should be adopted by the schools.

R. B. Taylor[1] suggests that school systems organize and follow a time schedule in the purchasing of school supplies. The schedule which he recommends is as follows:

January 1. Start preparation of annual requisition for supplies.
January 20. Submit annual requisition estimate to principals for correction or approval.
February 5. Annual requisition to be returned to the assistant superintendent in charge of business affairs.
February 5–March 15. Preparation of bid forms.
March 15. Bid forms mailed to bidders.
April 15. Bids must be submitted by this date.
April 15–May 15. Tabulation of bids and examination of samples.
May 15. Recommendation to purchase submitted to board of education and approved.
June 1. All purchase orders to be mailed before this date.

When to make settlement. Most dealers extend to buyers a discount of from 2 to 10 per cent if bills are paid within ten days or so after being rendered. A procedure of paying should be organized which will enable the school system to take advantage of such discounts. Industrial establishments seldom fail to take advantage of any possible discounts, while schools infrequently take advantage of them, and therefore lose thousands of dollars annually. This failure on the part of the schools is often due to the red tape of school laws or to obsolete rules and regulations of boards of education. When a board of education formally approves the purchase of a certain amount of material at a given price, such action should automatically authorize the payment of the bill as soon as the goods are received and the bill is rendered. Another meeting of the board of education should not be necessary to authorize payment of the bill. Merchants affirm that boards of education always pay, but that they are notoriously slow in paying.

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[1] *Principles of School-Supply Management*, pp. 90–91.

Checking Materials Purchased

Upon receipt of supplies they should be checked to make sure that specifications prescribed in the purchase orders have been followed. This checking should include both the quality and the quantity ordered. It is manifestly poor business to pay for anything without knowing that specifications have been satisfied. In the smaller school systems this checking will have to be done by the superintendent of schools, the principals, the teachers, and the janitors, depending, of course, upon the organization of the supplies system. Many school systems, whose expenditures for supplies amount to several thousand dollars each year, maintain a regular force of checking clerks. For example, such clerks check all coal that is received, both as to its heat-giving qualities and as to its weight. In brief, it is the function of these clerks to check every item of material that comes in.

Securing Bids

Legal provisions. The laws of most states stipulate that bids must be procured for school supplies costing more than a certain amount. Even though the laws of the state may not require it, good business dictates that supplies costing more than two or three hundred dollars should be selected on the basis of bids. This principle should apply of course to all supplies except those of an emergency nature. Red tape should never make it impossible to deal expeditiously with emergencies.

Advertising for bids. Advertising for bids may be done in newspapers, by the posting of advertisements in public places, and by sending a circular letter to jobbers and manufacturers requesting them to submit bids. The laws of most states limit the advertising to newspapers. Newspapers and outdoor advertising are, however, of less merit than the circular letter. School systems which have tried the last claim that it far excels the other methods of advertising. Posting an announcement that bids are open for prices on supplies is probably the least effective method.

Specifications. In organizing a procedure for bidding, specifications on each item of desired material should be designated. For example, if bids are wanted on penmanship paper, such details as size and quality of the sheet should be definitely specified, and a sample of the paper included with the specifications. In submitting samples to prospective bidders trade-marks and other identifications should be removed from the material. Of course with the approval of the school officials, dealers may be permitted to substitute different materials of as high quality as the samples on which bids are requested.

Bidder's blank. A blank which each bidder must use should be provided. A portion of such a blank for janitor's supplies, which is used in Chico, California, is given here. This city of course has other bidder's blanks, particularly for educational supplies.

A Sample Bidder's Blank

SCHEDULE OF ESTIMATED SUPPLIES

Bid of____ required by the School Department of the City of Chico, California, for the period of one year, commencing July 1, _______, and ending June 30, _______, the Board of Education reserving the right to use greater or less quantities than below stated. All goods are to be delivered at such times, in such quantities, and in such places (f. o. b.) Chico, as may be required by the Board of Education.

Important

All bids shall be clearly and distinctly written, without any erasure or interlineations, and the total amount of bid on each article must be carried out. If any bid shall have any erasure or interlineation, it will not be received or considered.

All attached special-supply or laboratory lists are hereby made a part hereof.

Where aggregate amount of bid is $500 or over, a certified check covering 10 per cent of the total must accompany the bid.

Note. This list specifies standards or grades of articles desired. Equivalent material of other manufacture may be submitted but will be accepted for delivery by the Board's regular purchasing committee only after approval of sample submitted.

Bids must be filed by 5 P. M.

To the Honorable,

The Board of Education of the City of Chico

Gentlemen:

In compliance with your request, we hereby promise and agree to execute the contract specified herein to the satisfaction of and under the supervision of the Board of Education of the City of Chico, at the prices given below:

Signature of bidder, ______________________

Address, ________________________

JANITORS' SUPPLIES

	AMOUNT REQUIRED	PRICE	TOTAL
CLEANING SUPPLIES			
Ammonia, quart bottles	----	----	----
"Bon Ami," bars	----	----	----
Lye, Babbitt's 1-pound can	----	----	----
"Gold Dust," 2½-pound package .	----	----	----
"Sani-Flush," small cans	----	----	----
Stove blacking, "Black Satin" . .	----	----	----
"Dutch Cleanser," small cans . . .	----	----	----
Cheesecloth, yards	----	----	----
Dustless duster cloths	----	----	----
"O'Cedar" dusters, 8-inch ring . .	----	----	----
"O'Cedar" oil, small bottles . . .	----	----	----
Dustpans, 9 × 13, extra heavy . . .	----	----	----
"Calol Liquid Gloss," floor dressing	----	----	----
West's "Coro Noleum" disinfectant	----	----	----
"O Bug O" disinfectant	----	----	----
"Ideal" 12-inch rubber window-cleaners	----	----	----
__________	----	----	----
__________	----	----	----
__________	----	----	----

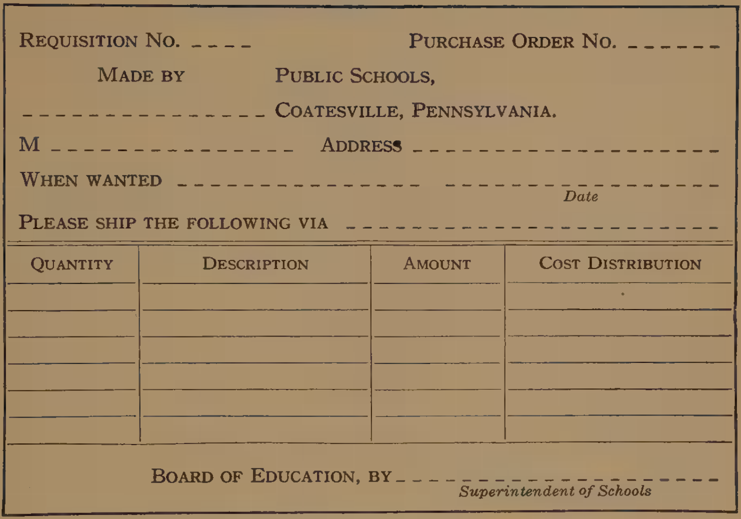
Regulations governing bids. Rules governing the bidding should permit the acceptance from any firm of a bid on one or more items and the rejectance of the bids on other items. One firm will often have a much lower price on certain materials than will other firms, but its bid on other materials may be higher than the bids of other firms. The advantage of this lower price can be secured if the recommended regulation is adhered to.

The rules should be explicit in every detail. Chief among the things which should be made clear to all bidders are the following: that the bidder's blank is not an order; the time when bids are to be opened; whether the lowest bidder will receive the contract, or whether the board will reserve the right to reject any and all bids; the time and place for delivery of the supplies; the guarantee, if any, which the bidder must furnish to the effect that he will fulfill the terms of his bid.

Bidder's guarantee. If a guarantee from each bidder is deemed necessary, a bond is recommended instead of a certified check. A certified check has the disadvantage of withdrawing capital from the supply firm for several weeks and frequently places a hardship upon the firm. If a bond is thought feasible, one might be executed for approximately 10 per cent of the amount of the supplies to be purchased. During recent years business ethics have improved so much that a guarantee is seldom required. It should not be forgotten that the cost of any guarantee, whether in the form of a certified check or bond, must be borne eventually by the purchaser, for dealers must add enough to the price of their merchandise to cover the cost of this service.

Soon after the results of the bidding have been determined, many boards of education send a letter to the unsuccessful bidders telling them of the result of the bidding. In this letter are stated, among other things, the reasons for the contract's being given to a certain firm or firms. The boards which do this affirm that the practice satisfies all bidders and encourages them to compete again. Here is another instance of how courtesy pays in dollars and cents.

Purchase-order form. In ordering supplies, a purchase-order form such as is employed in Coatesville, Pennsylvania, may be used. A copy of the Coatesville form is shown in Fig. 42.



Requisition No. - - - - Purchase Order No. - - - - - -

Made by Public Schools,

- - - - - - - - - - - - - - - Coatesville, Pennsylvania.

M - - - - - - - - - - - - - - - Address - - - - - - - - - - - - - - - - - - -

When wanted -

Date

Please ship the following via -

Quantity	Description	Amount	Cost Distribution

Board of Education, by -

Superintendent of Schools

FIG. 42. Purchase-order form used in Coatesville, Pennsylvania

Storage of Supplies

Two practices for the storage of supplies are in use. In the first, the supplies for the year or a certain portion of the year are stored in a general storehouse from which they are sent to the various rooms and departments as they are needed. In the second practice, all the supplies or as many of them as possible are sent direct to the unit in which they are to be used. This second practice has the advantage of eliminating one handling of the supplies and much extra accounting and bookkeeping. The latter practice is generally followed in the small or medium-sized school systems, and the former practice or a modification of it is used more often in the larger systems.

The general storehouse. As has been said, the larger school systems usually maintain a general storehouse.

Most materials, with the exception of fuel, are stored there. Fuel is taken at once to the plant that is to use it. If a general storehouse is maintained, it should be centrally located; furthermore, it should be fireproof or fire protected, arranged with shelves and bins properly tagged, and located as near to a railroad or a railroad switch as possible.

The local storehouse. Two practices are followed in the storage of supplies in the local building. One of these is to store the supplies in the principal's office or the building storeroom, and the other is to place them, when they are delivered to the building, in the room of the teacher who uses the supplies. Janitors' supplies are, of course, stored in the janitor's office.

In Rochester, New York, the supplies are delivered from the central storehouse direct to the teacher and are stored somewhere in his classroom or office. The advantages of the Rochester procedure are summarized thus by a principal of one of the schools of that city:[1]

> 1. From the teacher's point of view, the system: (*a*) provides each teacher with all her supplies to work with at the beginning of the term; (*b*) indicates just how much she is to have and is sure to get for the term's use, so she can plan her work accordingly; (*c*) provides for an adequate amount but not an oversupply, so it teaches economy on teacher's part; (*d*) provides for the saving of time, as it is not necessary to be constantly sending to the principal's office for supplies throughout the school year.
>
> 2. From the principal's point of view, the system: (*a*) provides for the saving of time, that is, no requisitions, no duplicate handling of supplies, and teachers do not have to ask office constantly for some supplies; (*b*) emphasizes the importance of economy all along the line; (*c*) eliminates the necessity of keeping at the office an accurate record of each teacher's allotment of supplies throughout the term; (*d*) eliminates the necessity of storeroom space within

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[1] J. S. Mullan, "Standardization and Distribution of Supplies and Equipment," Proceedings of the National Association of Public-School Business Officials (1925), pp. 30–31.

the building; (*e*) saves janitor's time as all supplies are delivered at one time to a teacher.

The more common practice is to send all supplies that are apportioned to a given building to the principal's office or building storeroom. Under this procedure, when teachers need supplies, they go to the principal's office for them. Most school systems which operate under this plan apportion sufficient materials for the work of a month or some other period of time.

Whether the supplies are stored in the principal's office, in the classroom, or in the janitor's quarters, they should be in a place that can be kept locked. Too many schools store their supplies on open shelves or in open cases in the hallway. Such practice, of course, invites pilfering or waste in some way.

Supplies should be so arranged in the storeroom as to facilitate their being found. On each shelf should appear a card which gives a list of supplies and the amount that have been placed there; moreover, there should be a record of the amount which has been taken from the shelves, so that before supplies are exhausted provisions for replenishment will be made. In taking supplies from the shelves an attempt should be made to use the old supplies first, particularly those which have been carried over from the preceding year. The storeroom should not be permitted to accumulate a lot of obsolete material and rubbish.

Use of Supplies

Apportionment of supplies. The amount of supplies allotted to each department should be standardized. Lack of standardization frequently breeds extravagance. With most items, the per pupil unit is a very desirable criterion to use in standardization. The dollar-and-cents unit is not so desirable, because the cost of most materials fluctuates from year to year. Nor is the teacher unit so desirable, for the number of pupils under the charge of the various teachers is not the same.

Rochester, New York, has a splendid scheme of standardization, which was worked out coöperatively by principals, supervisors, teachers, janitors, and the members of the purchasing department. Each teacher and each janitor knows at the beginning of the year the amount of supplies which he will receive during the year. A disadvantage of standardization is that it frequently places a stricture on teachers who could use advantageously a larger amount of supplies. In Rochester, however, if the teacher or janitor can show that he needs more supplies, these are granted to him; thus the burden of making the case is, as it should be, upon the teacher or the janitor.

Elimination of waste. Steps should be taken to see that all waste in the use of supplies is eliminated. The way in which the pupils, teachers, janitors, and others are using supplies should occasionally be ascertained. An inspection by the principal of the building to determine how economically pupils, teachers, and janitors are using their supplies secures excellent results in economy.

Systematic studies should also be made from time to time regarding the use of supplies. These studies would be particularly desirable in school systems in which standardization of the amount of supplies apportioned was not in effect. In making such a study, each of the school buildings might be ranked on the per pupil cost for janitors' supplies, for educational supplies, for electric current, for water, and for other important items. Many such studies have been made in various school systems with excellent results. It is worth while to have facts which show the members of the staff how they rank. Only by such facts can practice be criticized. A ranking never shows an optimum practice, but it does enable the persons involved to criticize their own practice, and it frequently stimulates efforts to find reasons for the ascertained facts.

More money is spent for supplies for the operation of the school plant than for any other type of supplies. The use of operation supplies should, therefore, be especially scrutinized. Fuel is the biggest item of expenditure in the operation of the school plant. Regarding the efficiency of the use of fuel, the following questions should be asked: Is the fuel which is being used the best kind, particularly for the furnace in which it is consumed? Do broken windows permit the escape of heat? Is the furnace being fired correctly? Answering these and similar questions will often result in the saving of thousands of dollars in a school system. An incompetent janitor can waste several hundred dollars annually in fuel and other operation supplies. On the other hand, an efficient janitor can save several hundred dollars in operation supplies.

Parkinson and Dockendorff, school architects at La Crosse, Wisconsin, have recently issued a list of suggestions concerning fuel economy. Their suggestions for economizing on fuel and caring for the heating plant are so valuable that they are quoted here in toto. The suggestions, it will be observed, are addressed particularly to the school janitor — the individual who is directly responsible for the use and care of the heating plant.

About the Building

The steam used for heating the building is generated from fuel at considerable cost. Save the steam and you save the fuel.

Do not start the plant too early in the morning.

Do not heat the building after school hours or for unnecessary purposes.

Do not overheat the school. If 68 degrees is sufficient, maintain that temperature in all rooms. There is a relation between temperature and humidity. Maintain the proper relative degree of each and your rooms will be at the comfort zone. This will not only save coal but will conserve health of pupils and increase their efficiency.

Keep corridors cool. Pupils are moving in corridors, or should be, and rooms will feel warmer when passing in from a cool corridor.

Shut off ventilators or other outside openings in buildings at night, or when school is not in session.

About the Boiler

Your boiler is provided with a furnace and combustion chamber in which the fuel is burned and also with the proper amount of heat-absorbing surfaces where heat is transferred to the water and steam.

The fact of a "strong draft" that would "draw a newspaper up the chimney" is not evidence of the right kind of draft to generate steam and properly consume the coal. It requires about 300 cubic feet of air for the proper combustion of one pound of ordinary coal. This air must pass through the fire box slow enough to permit mixing with the furnace gases for proper combustion.

Keep the grates well covered. The depth of the fire will be governed by the amount of draft and the kind of coal; that is, the coarser or more free-burning the coal or the better the draft, the deeper you can carry your fire.

Find the best depth for the fire and keep it at that thickness.

Fire often enough to prevent the fire from burning into holes or in irregular thickness.

Fire quickly to avoid as much as possible the rush of cold air into the furnace.

Do not fire coal in sizes larger than a hen's egg or man's fist; break up larger lumps.

The grate bars are made to rock and dump. When at rest the top of the grate bars should be perfectly level. If the "fingers" of the grate are left sticking up in the fire they may burn off or the grates may warp as a result of heating one side only.

Do not shake the grate any more than is necessary to keep the ash from fusing into clinkers and to let sufficient air through to make the required amount of steam. Too much shaking may waste good coal into the ash pit.

Do not let ashes accumulate in the ash pit. If the fresh-air supply under the grates is not sufficient, with a live fire on top of the grates, the grates are liable to warp or melt.

All tubes and smoke passages should be kept clean — a small amount of coating of scale or dirt in the tubes means a large percentage of loss of heat. The cleaner you keep the fire surfaces the more heat they can absorb, hence a saving of coal.

The soot doors should be opened frequently for removing any soot or residue from the coal that might lodge on the boiler shell.

Any accumulation of soot under the boiler should be removed through the large cleanout door, which opens into the rear combustion chamber.

The boiler is fitted with three handhole plates in the front head. The plates of the two lower handholes should be occasionally removed for cleaning out any dirt or sediment that may settle or accumulate on the crown sheet directly over the fire.

Do not remove the manhole plate on top of the boiler unless it becomes necessary to make internal repairs to the boiler. If in removing the handhole or manhole plates the gasket is found defective, new gaskets can be easily put in place by anyone in charge of the boiler.

Fusible (or safety) plug. This is located in the crown sheet of the boiler directly over the fire. It is made of brass with a core of fusible metal which melts at a comparatively low temperature when not covered with water. Should the water, through neglect or otherwise, get below the crown sheet, this fusible plug is supposed to melt and the steam and water blowing into the fire box will tend to check the fire and give warning to the person in charge. *In case of such fusing put out the fire.* Remove the old brass plug (with an ordinary monkey wrench) and screw in a fusible plug.

When you have the large handhole open to clean the crown sheet, scrape the top of the fusible plug to remove any dirt or incrustation that may have settled on it.

The water gauge has a small pet cock at the bottom of the glass.

Open this occasionally and let the steam and water blow through to make sure there is no stoppage in the water-glass connections.

Always leave both valves on the water gauge open, unless necessary to close them temporarily to renew a gauge glass.

Keep the water line at the proper height in the glass.

Keep the ash pit free from ashes and top of grates level.

Wash out the boiler spring and fall.

If two pounds of steam is sufficient to do your heating, do not carry three or five pounds. Keep the smoke passages free from dirt or soot.

Try safety valve frequently.

Fire evenly and regularly.

SOOT

Soot lowers the heat-absorbing efficiency of boiler-heating surfaces. Soot obstructs the passage of the products of combustion. Soot is a direct cause of corrosion. And soot is smoke. Although soot is the undesirable element of the boiler plant, an enemy of efficiency that is always present and cannot be entirely eliminated, it must be limited if economy in steam generation is to be realized.

As a destroyer of boiler efficiency, soot is more potent than would be five times the thickness of asbestos spread over the heating surfaces. In obstructing the passage of gases it not only reduces the area of free passage, but the soot clinging to the heating surface has a marked retarding effect on the flow of the gases in proximity to the heating surfaces, thus further reducing the rate of heat transfer to boiler contents. Corrosion of boiler tubes and surfaces is accelerated by deposits of soot, either through electrolytic action or the eating away of the metal by the sulphur constituents that are present, to some extent, in all soot. Then soot contains, or is, practically all the visible, wasteful, and objectionable constituents of smoke. Within the furnace, boiler, and flues, soot is merely soot; issuing from the chimney, it is black smoke.

Suppose that, as some claim, one-thirty-second inch of soot on the heating surfaces produces as great a loss as blowing out a pound of steam for every ten pounds generated. Steam escaping into a boiler room at any such rate would soon make it impossible for the fireman to remain near his boiler and would be such an evident sign of waste that it would not be countenanced in any plant, no matter how slipshod its operation. Nevertheless a mean thickness of one-thirty-second inch of soot may be found on the heating surfaces of many a boiler — it will frequently collect in ten hours' operation. Again, assume that a three-sixteenth-inch coating would be as detrimental to efficient operation as throwing away seven pounds of steam for every ten pounds generated, which, if allowed to escape into the boiler room, would quickly scald to death the boiler-room force or bring about their asphyxiation. Three sixteenths of an inch of soot is rarely found clinging to all heating surfaces, it is true, but such accumulation is not unknown in out-of-the-way corners of the boiler, corners that are difficult to cleanse of soot.

Perfect combustion of fuel would be the only way of eliminating soot. This being impossible of realization, every means of improving combustion must be taken. Too great efforts to prevent soot accumulation cannot be made, for it surely and continually settles on every surface that lies in the path of the products of combustion.

What has been said regarding the use of fuel is applicable to every other item of supplies. Extravagance in the use of school supplies frequently continues year after year, which, if practiced by an industry, would seriously diminish profits or bankrupt the industry. Regarding the economical use of educational supplies, R. B. Taylor[1] makes the following suggestions:

> In the lower grades of the elementary school, it is recommended that supplies be distributed to the children when they are to be used and that they be collected at the close of the period during which they are used. . . . In the upper grades of the junior high school, and in the senior high school, when pupils have learned to be judicious in the use of supplies, the distribution may be intended to cover a longer period. . . .
>
> In advanced industrial and trade courses, where salable articles are constructed, the student should be issued a stock sheet showing the quantities of materials used, and when the article is completed, he should pay the cost of the materials used unless the article re-

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[1] *Principles of School-Supply Management*, pp. 81–83.

mains in the possession of the school. . . . In the domestic-science, household-arts, and home-economics departments a similar plan should be followed. . . .

A considerable waste of materials may occur in laboratory science classes where students are inexperienced. Where chemicals are used, the students may be issued quantities directly from the stock-room supply bottles, and be required to make exact measurements. To cover the cost of unnecessary breakage of glass and porcelain ware, a deposit of one dollar may be required of each student.

Requisitioning and Delivering Supplies

Requisitioning. A simple and effective plan whereby supplies may be requisitioned from the storeroom should be formulated. Moreover, this plan should be made known to all members of the personnel who have occasion to requisition supplies. In many school systems — even those having generally excellent plans for requisitioning supplies — the plan is unknown to a large number of the school personnel. Of course, if such a plan as that used in Rochester, New York, is adopted, the supplies to which each teacher is entitled come to him automatically and regularly, and a requisition, except in emergencies, is unnecessary. Such a system, however, is not used by most schools, which must therefore organize a requisitioning plan. No material should be allowed to leave the storeroom unless a properly signed requisition or similar document has been received therefor.

The kind of requisition blank used will depend, of course, on the procedure for distributing which has been adopted. If the supplies for a building are kept in the building storeroom and are apportioned to teachers as needed, the teacher may use a form such as that in Fig. 43 for making his requisition to the principal. This particular form is used in the schools of Norristown, Pennsylvania.

When supplies are needed by a building or department from the general storehouse of the school system, a plan such as St. Louis uses for requisitioning them may be used. The St. Louis scheme of making requisitions from the general storehouse is briefly as follows: The requisition blank is filled out by the principal or by a departmental officer in quadruplicate. Three copies of this are approved by the proper supply officer. Three copies go to the storehouse, where the order is filled, routed, and sent to the delivery platform and charged against the driver. Except in emergencies, supplies are delivered to the several schools at the regular time of delivery. Three copies of the requisition blank go to the school with the supplies, one of which is left with the principal as a notice. The remaining blanks receipted go to the supply office to release the driver and to enable accurate charging. At a stated time each month

____________________, 192__

________________ Teacher ______ Pupils on Active Roll

__________ Room ______ Grade __________ Building

For this Month I shall need these Supplies:

Quantity Needed	Quantity on Hand	Item Number	Article	√	Do not Write Here

Supplies received as checked ______________________ Teacher	Approved ______________________ Principal

When supplies are delivered check (√) *in column provided and return this form to the principal.*

FIG. 43. Teacher's requisition for supplies

the remaining copy of the requisition blank goes to the financial auditor to permit abstracting and charging in the financial office.

Delivering. As has already been stated, the practice in most of the small and medium-sized school systems is to deliver the supplies, upon receipt from the dealer, direct to the unit in which they are to be used. Indeed, a few of the larger school systems now engage in this practice. They consider this practice the best, because, as has already been said, the supplies have to be handled only once. Most of the larger school systems, however, maintain a special organization for the delivery of supplies.

If supplies are delivered as they are needed from a central storehouse to the various units in the system, the delivery system should meet certain criteria. In the first place, it will probably be advisable to provide for a delivery schedule. In Rochester, New York, the supplies are delivered from the central storehouse to the several buildings twice each semester with a ten-week interval between each delivery. This plan presupposes that sufficient supplies will be delivered at each trip to operate the school for ten weeks; emergency deliveries, however, are provided for. Other school systems have delivery schedules with longer or shorter time intervals. The practice in the larger systems is to have a shorter interval between deliveries than Rochester has. A better procedure, however, is a longer interval between deliveries, and the best practice is to arrange for storage space in each school building in order that supplies sufficient for a year or a large part of a year can be delivered to the various buildings as soon as they are received. The amount of storage space available and the funds on hand at one time for supplies will of course largely determine whether this *best* practice can be adopted.

Accounting of Supplies

An accounting system for school supplies should be organized which would show immediately and at any time the amount of supplies on hand, the amount distributed, and where they were distributed. Only in this way can a supply budget for a succeeding year be made, and only in this way can inefficiency and waste be checked and eliminated.

Every school system should keep a permanent supply record and a perpetual inventory as part of its accounting system. R. B. Taylor[1] suggests for this work the use of forms similar to those illustrated in Figs. 44 and 45 on the following page.

Personnel of the Supply Department

Whatever the size of the school system, responsibility for administering school supplies should rest with some one person in the school system. In the smaller school systems this work may have to be performed by the superintendent of schools, or be delegated to a principal or one of the teachers. One of the teachers might be delegated this work instead of other extra-classroom work. A teacher who continued in the local school system for several years would be able to place the work of this department on an efficient plane.

In the medium-sized school systems, those, for instance, between 10,000 and 50,000 population, the business manager should be delegated the function of administering the department of supplies. In the large school systems, those of more than 250,000 population, for example, a department of school supplies should be established in the division of

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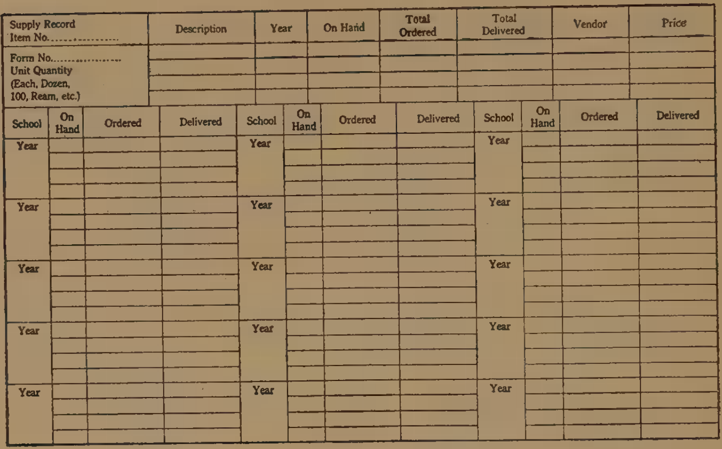
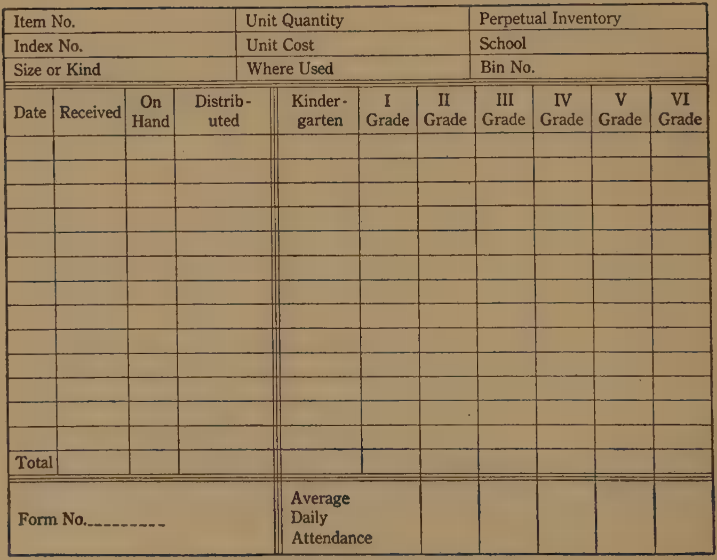
[1] *Principles of School-Supply Management*, pp. 73, 76.



Supply Record Item No.	Description	Year	On Hand	Total Ordered	Total Delivered	Vendor	Price
Form No. .... Unit Quantity (Each, Dozen, 100, Ream, etc.)							

School	On Hand	Ordered	Delivered	School	On Hand	Ordered	Delivered	School	On Hand	Ordered	Delivered
Year				Year				Year			
Year				Year				Year			
Year				Year				Year			
Year				Year				Year			
Year				Year				Year			

FIG. 44. Permanent-supply-record form



Item No.	Unit Quantity	Perpetual Inventory
Index No.	Unit Cost	School
Size or Kind	Where Used	Bin No.

Date	Received	On Hand	Distributed	Kindergarten	I Grade	II Grade	III Grade	IV Grade	V Grade	VI Grade
Total										
Form No.__________				Average Daily Attendance						

FIG. 45. Perpetual-inventory form

business management. The supplies department in such cities might well be headed by a purchasing agent who would have working under his direction the following individuals: someone in charge of the stores and receiving department, someone in charge of deliveries, and someone in charge of accounting and bookkeeping. It would seem that a school system which spends more than $40,000 or $50,000 a year for supplies should employ someone to give his entire time to the administration of this department.

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CHAPTER XVII

BUSINESS ADMINISTRATION OF THE TEACHING PERSONNEL

The amount allotted in salaries to members of the teaching personnel comes to more than any other item in the school budget. Approximately one half the school funds is spent for this item. This situation is as it should be; indeed, the school system which spends a large percentage of its budget for teachers deserves sincere commendation. It avails little to place $500 teachers in buildings worth $500,000. Brains, not bricks and mortar, make an efficient school.

School officials who direct the expenditure of the money allowed for salaries should make sure that it is spent as economically as possible. They must see that there is an adequate but not an unnecessary number of teachers and that there is sufficient pay for teachers but no waste in pay. These and related problems are discussed in this chapter.

Economies in the Number of Teachers

If the number of teachers is inadequate, the efficiency of instruction suffers. If too many teachers are hired, or if each teacher does not give the amount of service expected of him, waste results. In order that information on the adequacy of the teaching personnel may always be readily available, every school system should engage in a continuous survey of its personnel. If the services of but one teacher can be dispensed with at the regular contracting period, several hundred dollars are saved. A certain superintendent of schools in a city of approximately two hundred thousand population was able to dispense with the services of fifteen teachers by equalizing the teaching load of those remaining. Since $1550 was the median salary paid, the annual economy represented a total of $23,250. It was the belief of this enterprising superintendent that no loss in pedagogical efficiency resulted in making this financial economy. Economies that can often be effected in the number of teachers employed are given here.

The pupil-teacher ratio. Many studies have shown that the size of the class is by far the largest factor in determining per pupil costs. If other factors which enter into cost are equal, the school system which maintains a pupil-teacher ratio of 40 to 1 has a per pupil cost of only half as much as a school system which maintains a pupil-teacher ratio of 20 to 1.

What is of even greater interest than the cost is the fact that small classes are only slightly more efficient than large classes. In an extensive experiment, P. R. Stevenson[1] found that in classes which had twice as many pupils as other classes and in which all other factors, such as the intelligence of the pupils, the length of the recitation period, and the qualifications of the teachers, were the same, the pupils made an average grade per semester of 76 per cent, while the pupils in the small classes made an average grade per semester of 77 per cent. The average final examination mark of the pupils in the large classes was 79 per cent, while the average examination mark in the small classes was 80 per cent. In this experiment, sixteen pairs of classes in various subjects were studied. The average number of pupils in the small classes was sixteen, while the average number in the large classes was thirty-nine. In spite of the fact that the small classes had less than half as many pupils as the large, the small classes did only 1 per cent better than the large.

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[1] *Smaller Classes or Larger*, p. 107, Table XXX.

During recent years, many other investigations of the efficacy of large classes compared with small have been made, and the results agree in general with those of Stevenson's experiment.[1] A pertinent question to ask, therefore, is whether the small difference in efficiency in favor of the small classes is sufficient to justify small classes. Does an increase in efficiency of 1 per cent justify the expenditure of $20, $30, or $40 per pupil to secure it?

In any attempt to increase the size of classes, two warnings should be heeded. The first is that there is undoubtedly a point beyond which the size of the class cannot be increased without a resultant decrease in pedagogical efficiency. What that point is, experimentation has not yet demonstrated. A second warning to keep in mind is that the results of these experiments claim merely to show *what is*, not *what ought to be.*

Is it not an unfortunate commentary that small classes are little more efficient than large? From the results of these experiments must it not be concluded that teaching is being performed largely in a mechanical way? Must not it be concluded that *groups of pupils* instead of *individual pupils* are often the center of the teacher's attention? It seems logical to assume that if teachers met the needs of the individual pupil, small classes would be much more efficient than large ones. Instead, therefore, of engaging in a campaign to increase the size of classes, probably a campaign to secure teaching that would reach the individual pupil should be carried on.

In deciding upon the pupil-teacher ratio it should be remembered that the number of pupils which a teacher can effectively instruct is probably dependent upon several factors. Among the more important of these factors are the qualifications of the teacher, the nature of the subject taught, the intelligence quotients of the pupils, and the character of the equipment provided. Unfortunately little is known of the influence of each of these factors; here is a fruitful field for research. Common sense makes us conclude, however, that teachers would be able to instruct a larger number of pupils if teachers were better qualified, if more and better equipment and supplies were provided, and if similar things were provided. Teachers asking salaries of three thousand dollars, granted that they could efficiently instruct many more pupils, might be cheaper in the long run than teachers who received only two thousand dollars. The expenditure of a few dollars on such teaching aids as supplementary readers, standard practice exercises, maps, globes, and charts might enable the teacher to instruct, with equal results, a much larger number of pupils than would be possible if he had a small class but lacked these aids.

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[1] On pages 9–25 of Stevenson's book is a summary of these investigations.

The teaching load. In any attempt to ascertain the number of teachers that is adequate and to discover any economies in the number of teachers that can be effected, the teaching loads of the various teachers should be known. Particular consideration should be given to whether or not the loads of the various teachers are approximately equal.

When data on these matters are collected, interesting facts are frequently brought to light. For example, one teacher of mathematics may be teaching only four periods a day and but eighty pupils, while, in the same building, another teacher of mathematics may be teaching six classes and almost two hundred pupils; moreover, the study-hall, extracurricular, and other assignments of these teachers are probably the same. Not that the writer believes the teaching loads of all teachers should be the same, but that these loads should be definitely known. Only by knowing what the practice is, can it be purposefully criticized. Obviously many factors other than the number of classes which the teacher instructs should be considered in determining individual loads. Among the more cogent of these factors are the teacher's qualifications, the teacher's health, the subject, the teacher's administrative and extracurricular duties, and the number of pupils in each of the classes.

Safeguards against small classes. Since class size is the chief factor in determining per pupil costs, steps should be taken to make sure that all classes are maintained at a desirable pupil-teacher ratio. This is necessary because most communities have only a limited amount of money for operating the schools and this sum must be spent in the best way possible. Money is spent in "the best way possible" if it is spent without waste and if it meets the needs of the greatest number.

Under an ideal arrangement, of course, every school system would have sufficient funds with which to give each pupil the type of work best suited to his needs, irrespective of the number of other pupils who might need or desire that type of work. Few school systems, however, have a sufficient amount of money to meet all the needs of the individual pupil. Most communities must be content with offering those subjects which are desired by a fairly large number of pupils.

Several things can be done in the attempt to offer a greatly diversified curriculum and at the same time keep the size of classes at a desirable number. For example, subjects may be alternated. In a small high school, chemistry can be offered one year and physics the next; American history one year, and English history the next; American literature one year, and English literature the next; and algebra one year, and geometry the next.

Often it is advisable or necessary to withdraw certain courses. For example, if the offering of a given subject to ten pupils makes it impossible to offer another subject to twenty pupils, it is advisable to eliminate the subject which ten pupils want and to offer the one for twenty pupils. The question of whether we are justified in offering subjects, particularly elective subjects, for only a few pupils is worth pondering. The answer should be determined by the amount of money available for education and the urgency of other requests. In deciding what to do, relative values and needs of the greatest number must always be kept in mind.

Teachers' Salaries and Salary Schedules

Importance of sufficient pay. "The teacher is the school" is a time-worn truism. He it is who primarily determines whether the school is efficient or inefficient. The teacher is closest to the pedagogical firing line; he is monarch of all that he surveys. Former President Eliot, of Harvard University, gave this as the definition of a university: "Mark Hopkins at one end of a log and a student at the other end." Eliot's definition is equally applicable to all types of schools. Although such things as an efficient administrative and supervisory organization and a good building and equipment facilitate instruction, the teacher is the all-important factor; for him there is no substitute. No one denies that the most urgent present need of the schools, as it has always been, and as it will probably continue to be, is an efficient corps of teachers. No function of school administration is of more vital importance than the selection of excellent teachers and the maintenance of their esprit de corps.

One of the chief factors, perhaps *the* chief factor, in determining the competence of a teaching personnel, is the salary which is paid the personnel. Although there are many exceptions to the rule, — many more than there should be, — a salary of $2000 usually buys a higher grade of teaching skill than one of $1500. Teachers are only human in their desire to earn as much as possible. They have the same instincts, tastes, and ambitions as other persons; they desire the same comforts and advantages as other workers; they are not ascetics.

It should be the aim of the school administration to maintain a salary schedule which will secure a high quality of teachers, retain the services of such teachers, and make the teachers happy in their work. A school system that maintains a low standard of pay is not likely to secure a first-rate teaching personnel; moreover, if such a system is fortunate enough to have any first-rate teachers, they will be lost to communities which pay higher salaries. Excellent teachers tend to gravitate to school systems that pay high salaries.

Making a salary schedule. Every school system should maintain a salary schedule. In the first place, a salary schedule is desirable because it facilitates scientific budget-making. When a salary schedule is maintained, school officials can predict with a considerable degree of accuracy the amount of money which must be procured to meet the teachers' pay roll. In the second place, a salary schedule tends to assure that approximate justice will be guaranteed to the members of the personnel and to the public. Without a salary schedule, either verbal or written, it is often a question of the teacher's securing what he can. Extraneous matters such as "politics," family relationships, or some sort of favoritism frequently determine the salary when no schedule exists. A poor schedule is probably better than none.

Questions of what features should be found in a salary schedule and what principles should be followed in making such a schedule have received much attention during recent years. In spite of the large amount of thought which has been given to these questions and notwithstanding the fact that much improvement is noted in such schedules, the "last word" has not yet been spoken, nor will that last word be spoken in the next succeeding paragraphs, much as we should like to speak it.

It is generally agreed that the first aim of any salary schedule should be to reward *merit*. To do this, however, is a problem of transcending difficulty — it is easier said than done. It is difficult because, in the first place, there is no agreement on what constitutes merit or, in other words, a good teacher. In the second place, it is difficult because, although agreement might be reached on what constitutes merit, there is no objective way of measuring it. If there exists a larger problem in the administration of the teaching personnel than this, we have failed to discover it. This is a problem whose solution will challenge many educational Solomons.

Most recent thinking on the problem of measuring teaching efficiency has been directed toward the *teacher*. For example, by means of score cards and similar devices he has been rated on personality, voice, discipline, technique, and other items. The solution of the problem will probably be found, if ever it is, in measuring *the effect which the teacher's instruction has on the pupil*. In other words, should not our efforts be directed toward the measurement of pupil accomplishments rather than toward teachers? If the teacher secures results — we mean "results" in the broadest sense of the term — what manner of person he is should not be considered.

The school administrator cannot wait, however, until such problems are solved. He must always be an idealist, but must ever realize that practical situations are faced. He is confronted with the necessity of designing a salary schedule based upon the best principles now known; he cannot wait for the millennium to arrive. Most salary schedules in use today pay the teacher on the basis of training and experience. They assume that training and experience are criteria of merit. It is common knowledge, however, that training and experience are not necessarily measures of merit. There are extant some doctors of philosophy and some members of that time-honored society, Phi Beta Kappa, who are poor teachers. If age and experience were a sure index of ability, Methuselah would be the greatest man in history; that good man, however, is remembered only for his unexcelled age. Until we know more definitely the characteristics of a good teacher, and until we have an objective method by which to measure teaching efficiency, training and experience, fallible though they are, will probably continue to be the chief determinants of the teacher's salary.

There is no reason, however, why attempts should not be made to measure merit by means of the devices which are now available, imperfect as they are. In any community why could not a committee of teachers, principals, and the superintendent of schools design a rating scale or score card to be used in measuring teaching efficiency? If this scale were used by various individuals in rating the individual teacher, the rating might carry more value; in any case, it would be more likely to be accepted as fair and accurate. The superintendent of schools or the assistant superintendent of schools might rate the teacher at one time, the principal of the school at another time, and the special supervisors, if there were such, at other times. These ratings which had been made independently by various individuals could then be summated and the teacher's final rating determined.

E. P. Cubberley[1] suggests that the following factors be kept in mind in making a salary schedule:

1. A high-enough beginning salary to enable the city to secure well-trained and well-educated teachers for the service.
2. Small automatic annual salary increases for a period of years, say five to seven years, during which time the teacher is gaining competency and reaching a point beyond which increase in teaching efficiency is usually small without further professional preparation. This common maximum should represent a living wage for a person with the habits, instincts, and training of a teacher.
3. Provision whereby experienced teachers from elsewhere may be taken into the system and started at some point in the scale above that of beginning teachers.
4. Further salary increases, beyond the common maximum, to progressive and capable teachers, the basis for such payments being so arranged as to stimulate industry, encourage individual improvement, and reward exceptional merit.
5. Such an arrangement of salaries as will permit of the assignment of every teacher to that position or kind of work which he or she can do best, without first considering the salary of the position to which the teacher is to be assigned.
6. Special salaries may, however, be attached to positions calling for special capacity, such as demonstration teachers, or teachers of unruly or incorrigible pupils, to which specially capable teachers may be assigned.
7. Grades in the elementary-school service, analogous to those commonly found in the secondary-school service, could with entire propriety be created, with automatic increases in salary within the grade until the maximum for the grade has been reached.
8. For promotion from one grade to another, after the probationary grade, evidence of professional growth and high classroom efficiency should, in general, be required.
9. For such evidence, private study with local promotional examinations, or approved summer-school or other collegiate study, may be accepted for professional growth; the high classroom efficiency should be determined by as large a combination of tests of different

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[1] *Public School Administration*, pp. 268–269.

types, given by different individuals, as is feasible. Better results will probably be obtained if the results of all scoring and tests are open to the inspection of the teacher concerned.

10. The maxima attainable for teachers who remain in the work and make teaching a professional career should be relatively large, — from two to two and a half times the beginning salary for the same class of work; but such maxima should not be attainable under about fifteen to eighteen years of service, nor without proper evidence of professional proficiency. Those who make teaching a temporary employment should not advance much beyond the common maximum for all teachers.

11. There should also be provision for a pension system, or for the placing of teachers in subordinate teaching or clerical positions, and at lower pay, who, by reason of age, have outlived their usefulness as classroom teachers, so that those who have rendered faithful service, but who, due to age or disease, are no longer efficient, can be retired for the good of the schools. Of the two plans the pension system is preferable, though the other has a certain usefulness.

Pay for Disability

The need of disability benefits. In these days of the ubiquitous automobile, railroad, street car, and other accident-causing features of a bustling, twentieth-century civilization, few people can hope to escape an incapacitating misfortune of some kind, particularly over a span of years. Still fewer people can expect to escape sickness; in fact, only a very few, statistics inform us, go through even one year without undergoing at least one illness — generally unnecessary sickness, the health experts tell us, but sickness that most people still reserve the right to have notwithstanding. Teachers are no exception to the rule; accidents and sickness befall them as well as other persons.

The accompanying cessation of employment and loss of salary during an illness introduce several problems of vital concern to most teachers. How may this loss of income be avoided? What source or sources will furnish the necessary funds to take care of expenditures for hospital bills, medical treatment, and other necessities? Will such incapacity result in inconvenience to one's dependents? These and other questions of similar purport immediately arise to harass incapacitated teachers.

Boards of education, as well as the teachers, should be interested parties to the matter here discussed. They are under obligation to provide those conveniences which promote the best possible working conditions and maintain the esprit de corps of their employees. Conversely, they have a responsibility to the general public: they are in duty bound to prevent all unnecessary expenditures of public funds. Accordingly they should be desirous of guarding against malingering and unwarranted absences on the part of employees. A scheme of relief which is just and fair both to teachers and to the public is the desideratum. The teacher who is truly the victim of ill health or accident is entitled to the utmost consideration, but the shirker who feigns disability in order to avoid duty must be rendered harmless.

Methods of providing disability benefits. Both teachers and boards of education have devised various schemes of solving the problem mentioned. Boards of education, particularly those of the cities, quite generally make use of the scheme of partial relief. Under such plan full salary or some portion of it is customarily allowed the teacher incapacitated for a specified number of days.

Two major difficulties are encountered by boards of education in the administration of salaries for disability. In the first place, the period subsidized is not always coincident with the term of disability, for practically all boards of education set a limit upon the amount of pay which a teacher may secure for disability. This fact frequently results in a hardship to the teacher and tempts him to return to his work before he is able. In the second place, some unscrupulous teachers see in the good will of the board of education an opportunity "to take a vacation" with little or no loss of pay. It is a demonstrated fact, a fact albeit with unsavory implications, that communities which have relatively long periods of pay for disability have many more requests for disability leaves than communities which have short or relatively short periods of pay. As a result of these conditions, dissatisfaction is often evinced by teachers and boards of education alike.

In an investigation on the amount of pay granted to teachers during absence caused by disability, in American cities of eight thousand population and more, E. S. Evenden found that the modal practice for the 332 cities reporting was to give full pay for 10 days. Fifty-two cities used this practice. Evenden found, however, that ninety-six other practices were in vogue.[1]

G. E. Carrothers has shown that in Cleveland, Ohio, the average number of days of disability for teachers was 4.79 each year.[2] In the same study, which included a large number of cities, Carrothers shows that there is a high correlation between the amount of disability and the number of days of pay given. For example, the school system that gives ten days of pay for disability can expect to receive approximately twice as many requests for disability absence as the school system that gives five days of pay. This makes us conclude that a good deal needs to be done toward securing a better administration of the disability-leave policy. In a certain city of approximately a million population, an economy of $16,000 in one semester was effected in the administration of disability leaves by the simple expedient of requesting the teachers to sign a statement that they were incapacitated.[1] In most communities not even this is done; usually the teacher merely calls the principal or other appropriate administrative officer and reports that he is incapacitated and cannot report for duty. No check is made on whether or not the teacher is really incapacitated. It is the duty of the administrative officers to see that the public, as well as the teaching corps, is dealt with justly; the temptation which some teachers have to cheat should be reduced to a minimum. Before pay is given for disability, perhaps a physician's statement certifying to the disability should be presented. All stock insurance companies require a physician's statement before disability indemnity is given.

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[1] Mimeographed material from Dr. E. S. Evenden, Columbia University, New York City.

[2] *The Physical Efficiency of Teachers* (Contributions to Education, No. 155), p. 27. Teachers College, Columbia University.

Another way in which the matter can be handled is to let the days for disability accumulate from year to year; thus if a teacher is not disabled during one year, he could carry over the ten days from that year to the next year. At the end of the second year, were he not disabled, he would be entitled to twenty days. He would have this much pay coming to him if he left the profession or he could let it accumulate until such time as an extended disability might use it up.

Another suggestion has to do with health and accident insurance provided by stock companies. During recent years the teachers of many communities have purchased group sickness and accident policies. This type of insurance gives excellent protection at a nominal cost. So far, the teachers are paying all the premiums, but there would seem to be no reason why the teachers and the board of education should not share the cost.[2]

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[1] For a sample form that may be signed by teachers in reporting their reasons for absence, see Fig. 47, p. 393.

[2] For a discussion of "Group Health and Accident Insurance for Teachers," see W. G. Reeder and F. H. Conners in *American School Board Journal* (March, 1926), Vol. LXXII, pp. 115–116.

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Stevenson, P. R. *Smaller Classes or Larger.* Public School Publishing Company, Bloomington, Illinois, 1923. 127 pp.

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Washburne, C. W. "A Graduated Schedule for Elementary Teachers," *Elementary School Journal* (January, 1920), Vol. XX, pp. 381–388.

A schedule based on training and efficiency; provides for extra pay if the teacher remains in the system during the following year.

Watson, B. M. "Merit and Other Factors in the Teachers' Salary Schedules," *American School Board Journal* (May, 1921), Vol. LXII, pp. 33–35, 112.

A study of the practices of the larger cities in the administration of salary schedules.

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A symposium of Ohio superintendents on a reorganization of the teaching load.

CHAPTER XVIII

SCHOOL-PAY-ROLL PROCEDURE

The Pay-Roll Problem

The size of the pay-roll problem in a school system is comprehended when it is known that approximately two thirds of the school revenue goes to pay the salaries or wages of school employees and that the contracts of these employees provide that payments shall be made regularly at stipulated intervals. Even a small school organization — for example, one in a community of only a few hundred inhabitants — has a dozen or more employees to pay regularly, and system in the payment of these few employees cannot be entirely neglected. The larger the school organization the more urgent of course is the need for definite system in pay-roll procedure. A city such as Chicago must pay monthly or semimonthly approximately twenty thousand school employees; moreover, the pay roll for one month in a city of that population amounts to several million dollars. So large is the work of administering pay rolls and so important is it for the work to be done with accuracy, dispatch, and economy, that many of the larger school systems have established a separate pay-roll division to administer this work. Chicago, for example, has a pay-roll division which comprises a staff of sixteen employees under the direct supervision of a head clerk.

With regard to the personnel for such work in the small and in the medium-sized school systems, various procedures are employed. Bridgeport, Connecticut, a city of approximately one hundred and fifty thousand population, gives the function of administering pay rolls to one person who also administers the substitute-teacher service. The smaller school systems either hire extra clerical help for a day or two before each pay period or give the pay-roll work to the superintendent of schools, office clerk, business manager, or some other regular employee in the general administrative office.

Properly to administer pay rolls requires the giving of attention to such matters as control over the employment of individuals, fixing the rates of compensation of employees, ascertaining the services rendered by them, and paying them. Unless attention is given to these matters, there is likely to be waste, — waste due to such things as too small pupil-teacher ratios, teachers being employed who have not been certificated, payment for services which have not been rendered, or employees not securing their pay at the proper time and in the proper way. This chapter outlines a procedure for handling these matters. The procedure suggested is particularly applicable to large school systems,— for example, those of communities having a population of more than ten or fifteen thousand; in smaller school systems, the procedure need not be so elaborate.

Authorization of Positions

The rules and regulations of the board of education should establish a definite procedure for the authorization of the employment of any individuals; unless this control is provided, too many or incompetent employees may be procured. The necessity for establishing machinery for such authorization is seen particularly in the case of instructional employees. All states have enacted laws which require that teachers shall be certificated; if such employees have not met the requirements established by the statutes, the payment of salaries to them constitutes an illegal expenditure. Before a teacher is employed it should be known that he has the proper certificate. When this information is secured, and not until then, the name of the employee may be included in the pay-roll list at the rate of compensation which has been agreed upon.

As a basis for the authorization of new positions, information regarding the need for new positions or for additional employees should always be made available. For example, before an additional teacher is allotted to a certain building, there should be information that would show that the present staff is inadequate to care properly for the increase in enrollment. Every school system should occasionally make an internal survey to ascertain how effectively it is using its present personnel, whether instructional or business; when information on this and on needed extensions is available, positions may be authorized in full consciousness of their necessity; moreover, when the need for such positions is known, they can be provided for in the school budget and revenue procured to meet the enlarged pay roll.

A Suggested Pay-Roll Procedure

The pay interval. Most communities pay the members of the instructional staff and similar employees monthly. Operation and maintenance employees, however, are usually paid on a semimonthly basis. Some school systems pay all employees semimonthly. Gary, Indiana, has divided the year into twenty-six pay periods, each period, with two exceptions, covering fourteen days; the two exceptions are pay period number one and pay period number twenty-six, either of which may have a lesser or a greater number of days. Gary's reason for making this division of the pay period is that the Indiana laws make the month for payment of teachers' salaries twenty-eight days, while other employees are on the regular calendar-month basis. By the arrangement just mentioned, it is possible to include all classes of employees on any particular pay roll. In the Gary plan, therefore, each pay period, with two exceptions, has the same number of days, whereas in the calendar-month pay period, each period does not have the same number of days. The pay periods for Gary for the school year 1926–1927 are as follows:

No.	Period	Length
1	August 1 to August 21, 1926	21 days
2	August 22 to September 4, 1926	14 days
3	September 5 to September 18, 1926	14 days
4	September 19 to October 2, 1926	14 days
5	October 3 to October 16, 1926	14 days
6	October 17 to October 30, 1926	14 days
7	October 31 to November 13, 1926	14 days
8	November 14 to November 27, 1926	14 days
9	November 28 to December 12, 1926	14 days
10	December 13 to December 25, 1926	14 days
11	December 26 to January 8, 1927	14 days
12	January 9 to January 22, 1927	14 days
13	January 23 to February 5, 1927	14 days
14	February 6 to February 19, 1927	14 days
15	February 20 to March 5, 1927	14 days
16	March 6 to March 19, 1927	14 days
17	March 20 to April 2, 1927	14 days
18	April 3 to April 16, 1927	14 days
19	April 17 to April 30, 1927	14 days
20	May 1 to May 14, 1927	14 days
21	May 15 to May 28, 1927	14 days
22	May 29 to June 11, 1927	14 days
23	June 12 to June 25, 1927	14 days
24	June 26 to July 9, 1927	14 days
25	July 10 to July 23, 1927	14 days
26	July 24 to July 31, 1927	8 days

Most school systems pay their teachers and other instructional employees during only the months of employment; thus, if the school term is nine months in length, teachers are paid on a nine-month basis. There is a slight tendency, however, to place the teacher's salary on an annual basis and to pay it on a twelve-month basis; by this plan, although the annual salary is the same, the teacher can look forward to a salary check during each of the vacation months.

Pay-roll regulations. Every school system, particularly if it has a considerable number of employees, should design a set of rules and regulations governing pay-roll procedure. These rules should be mimeographed or printed and a copy placed in the hands of each administrative officer who has been delegated a pay-roll function. So far as we have been able to ascertain, Des Moines, Iowa, has developed the best set of such rules and regulations. We know of no greater help that this chapter can give the practical school administrator than that of reproducing the Des Moines rules and regulations, together with the pay-roll forms which that city uses; these have been taken from *General Bulletin No. 2* (August 31, 1925) of the Des Moines Public Schools.

PAY-ROLL REGULATIONS OF DES MOINES, IOWA

I. GENERAL INSTRUCTIONS

1. *Record of attendance.* The attendance record of each employee of the School District is kept each day on a card by the principal of the building or the head of the department in which he or she is employed, a duplicate copy of each card being kept on file in the office of the pay-roll clerk.

2. *How the records are kept.* The directions for the use of the symbols with which the records are kept are given fully on the back of each card. Absences and their causes should be recorded as soon as they occur in order that there may be no inaccuracy as to dates or reasons. If no absences occur, the card is left blank except in the case of those whose pay is computed by the hour. Their records will show for each day the number of hours they have worked.

3. *Transfer of record for pay roll.* Several days before the close of the period for which payment is to be made the duplicate set of cards will be sent to the principal or department head. *If absences have occurred,* the records should be copied exactly in the proper spaces. It is extremely important that the reasons for absences be indicated by the proper symbols.

4. *Certifying to the record.* In every instance, whether there have been absences or not, the initials of the principal or department head must be placed in the space opposite the name of the month.

5. *Time of sending in records.* All those who send in the records of service will be held responsible for submitting such reports in the manner and at the time indicated. The exact time when these records must be in the hands of the pay-roll clerk will be stated in each Annual Calendar of Activities.

In order to insure the prompt delivery of the pay-roll cards, they should in every instance be sent by messenger and not mailed. In case the date on which a report is due at the office does not come on a Thursday, a special messenger must be sent.

No warrants will be issued until these cards have been received in the office of the pay-roll clerk properly filled out and *certified.* Any delay in delivery necessitates a special pay roll, these warrants being issued five days later.

6. *Correction of errors.* Any errors made on a pay roll will be adjusted on the following pay roll.

7. *Approval of pay rolls.* All pay rolls, in any department, after being made out by the pay-roll clerk, must be submitted to the Superintendent of Schools for his approval and signature. They are then sent to the secretary's office.

II. SPECIFIC INSTRUCTIONS

A. TEACHERS' PAY ROLL: DAY SCHOOLS

NOTE. Record for this is kept on the form shown in Fig. 46.

1. *Persons to be reported.* This pay roll includes principals and assistant principals of grade schools, assistant supervisors, high-school, grade and kindergarten teachers, nurses, and all teachers of special subjects.

2. *By whom submitted.* It is submitted by heads of departments and by principals.

3. *Basis of payment.* This pay roll is made on the basis of the school month of twenty days. Rules regarding deduction of pay appear on the back of each card. [See reverse side of Fig. 46.]

4. *Pay for holidays.* Extract from "Salary Schedule Rules and Regulations":

> 1. When a legal holiday or a school holiday granted by authority of the Board of Education, or any group of consecutive holidays next follows the tenth day of absence for which payment is allowed, such holiday or holidays shall be credited to the absent teacher in case he or she resumes his or her duties on the next regular school day after the holiday or holidays.
>
> 2. If, after the expiration of ten days' absence for which payment is allowed, a regular teacher actually teaches on any day of the week in which the holiday or holidays occur, the regular teacher shall receive credit for the holiday falling within that week.

5. *Pay rolls due.* The cards (Fig. 46), on the following page, are sent out by the pay-roll clerk on Thursday of the third week of the school month, and must be returned to her on Thursday of the last week of the school month.

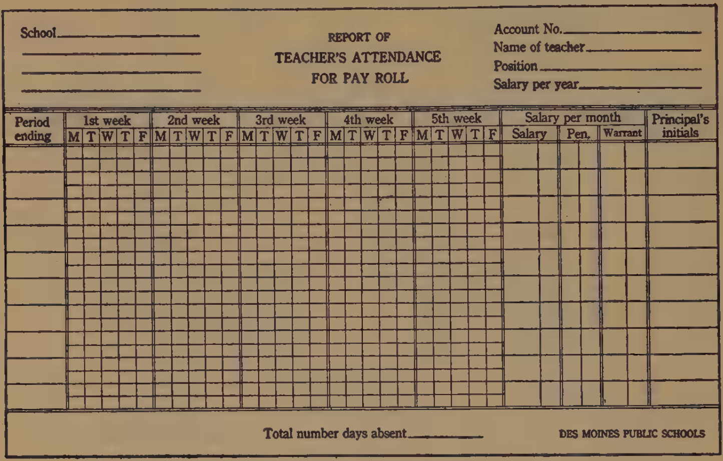
6. *Special teachers.* Pay rolls for the special teachers and nurses who are assigned regularly to more than one building are sent in to the head of the department in which he is employed. Pay-roll cards are handed to these supervisors by the pay-roll clerk, the method of procedure being precisely the same as that followed in the case of pay rolls sent in from the buildings by the principals. (See "General Instructions.")

7. *Certificates of illness.* If the pay-roll records show absence of teachers on account of personal illness, Certificates of Illness properly signed must accompany the cards except in cases when the teacher is absent on the last three days of the school month.[1] In such case, the certificate must be filed with the pay-roll clerk as soon as the teacher returns to school.

8. *Delivery of warrants.* Warrants will be given to the principals and department heads at the time of the regular principals' meeting, which is held on the first Tuesday of each school month at 8.45 A. M.

---

[1] Fig. 47 shows a suggestive form for reporting absence for which pay is requested.



School____________________
____
____
____

REPORT OF
TEACHER'S ATTENDANCE
FOR PAY ROLL

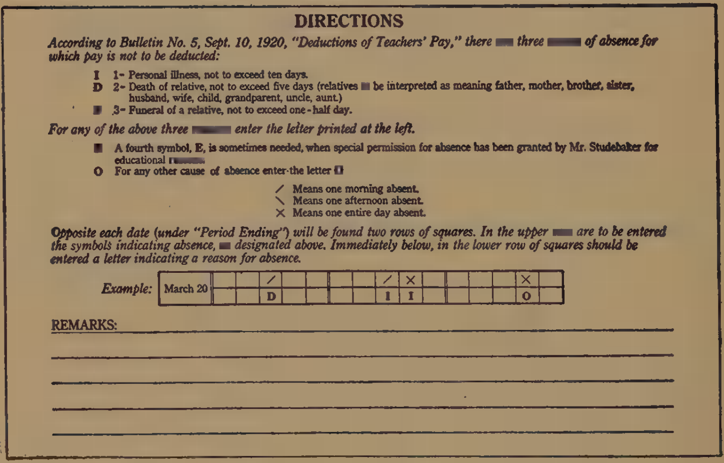
Account No.__________________
Name of teacher_______________
Position______________________
Salary per year________________

Period ending	1st week					2nd week					3rd week					4th week					5th week					Salary per month			Principal's initials
	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	Salary	Pen.	Warrant	

Total number days absent__________

DES MOINES PUBLIC SCHOOLS

FIG. 46. Form for reporting teacher's attendance for pay roll



DIRECTIONS

According to Bulletin No. 5, Sept. 10, 1920, "Deductions of Teachers' Pay," there [redacted] *three* [redacted] *of absence for which pay is not to be deducted:*

I 1- Personal illness, not to exceed ten days.
D 2- Death of relative, not to exceed five days (relatives [redacted] be interpreted as meaning father, mother, brother, sister, husband, wife, child, grandparent, uncle, aunt.)
[redacted] 3- Funeral of a relative, not to exceed one-half day.

For any of the above three [redacted] *enter the letter printed at the left.*

[redacted] A fourth symbol, **E**, is sometimes needed, when special permission for absence has been granted by Mr. Studebaker for educational [redacted]
O For any other cause of absence enter the letter [redacted]

/ Means one morning absent.
\ Means one afternoon absent.
× Means one entire day absent.

Opposite each date (under "Period Ending") will be found two rows of squares. In the upper [redacted] *are to be entered the symbols indicating absence,* [redacted] *designated above. Immediately below, in the lower row of squares should be entered a letter indicating a reason for absence.*

Example:

March 20			/					/	×					×	
			D					I	I					O	

REMARKS:____
____
____
____
____

(Reverse side of Fig. 46)

9. *Transfer of teachers.* In case a teacher is transferred from one building to another, the Attendance-Record Card (shown in Fig. 47) should be sent immediately to the pay-roll clerk, who will

see that it is forwarded to the building to which the teacher has been assigned. Any absence or change which may have occurred before the date of transfer must be recorded together with the reason.

10. *Resignation of teachers.* In case of the resignation of a teacher, the principal should place the letter "R" in the date space of the first day after she has left. This is very important. This record will be transferred to the blue card at the end of the month and if any salary is due the teacher the warrant will be issued at the regular time. The buff card, however, should be retained in the building.

In all cases of absence from duty on the part of teachers or other employees of the Board of Education, and if compensation is anticipated during such absence, the absentee shall fill out this absence report, showing the duration of the absence, the date, and a full explanation of the cause of the absence.

Absence began --

Returned to duty ---

Complete statement of the cause of the absence ---------------

----

I hereby certify that the above statement is in accordance with the facts.

Employee's Signature

FIG. 47. A form used by employees in stating excuse for absence

This is not a Des Moines form

11. *Transportation for teachers. a. Outlying schools.* According to the rules of the Board, the cost of extra transportation is provided for teachers in Barton and Bly Schools, $20 being paid at the close of each semester to each teacher in these schools if the teacher has served the full semester.

b. Carfare. If any teacher is assigned to more than one building and such assignment necessitates the payment of carfare in excess of the regular two fares per day, a report of such expense showing the number of such additional trips should be submitted to the payroll clerk at the close of each semester. Such report must in every case bear the signature of the teacher and principal.

B. SUBSTITUTE TEACHERS' PAY ROLL

NOTE. Records of substitute teachers are kept on the form shown in Fig. 48.

The blank for this purpose must be kept on the principal's desk, as substitute teachers are requested to register as soon as they arrive in the building to begin their work.

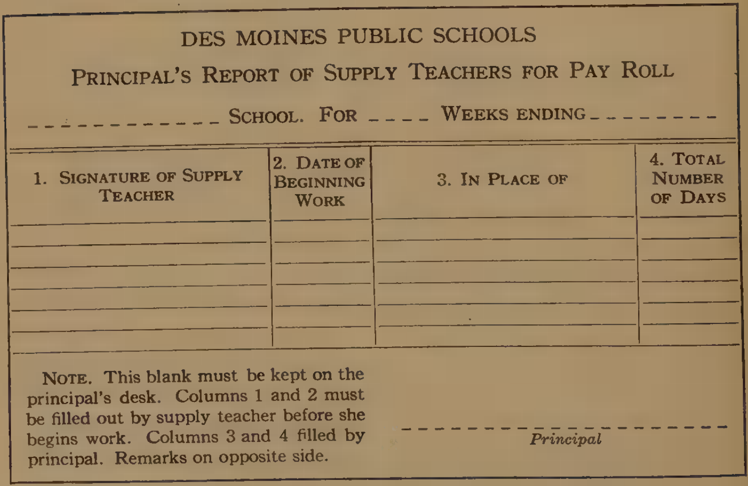
1. *Persons to be reported.* This pay roll includes all substitute teachers regardless of the length of assignment in any one building.

2. *By whom submitted.* It is submitted by principals and heads of departments on the form shown in Fig. 48 and also by the substitute teachers on the form shown in Fig. 49.

3. *Basis of payment.* Substitute teachers are paid on a daily basis for the number of days of service rendered.

4. *Pay for holidays.* Extract from "Salary Schedule Rules and Regulations":

> A substitute teacher shall be credited with the holidays if he or she teaches the same position all of the school days of the week within which the holidays fall, provided the teacher for whom he or she substitutes is not entitled to credit for those holidays, and any substitute teacher who holds a position to which no regular teacher is assigned shall be entitled to pay for holidays the same as a regular teacher.



DES MOINES PUBLIC SCHOOLS

PRINCIPAL'S REPORT OF SUPPLY TEACHERS FOR PAY ROLL

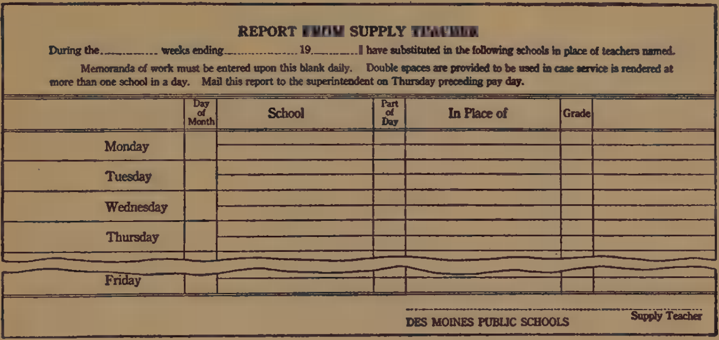
____________ SCHOOL. FOR ____ WEEKS ENDING _________

1. SIGNATURE OF SUPPLY TEACHER	2. DATE OF BEGINNING WORK	3. IN PLACE OF	4. TOTAL NUMBER OF DAYS

NOTE. This blank must be kept on the principal's desk. Columns 1 and 2 must be filled out by supply teacher before she begins work. Columns 3 and 4 filled by principal. Remarks on opposite side.

____
Principal

FIG. 48. Form for reporting supply teachers for pay roll



REPORT [redacted] SUPPLY [redacted]

During the.............. weeks ending.................... 19............I have substituted in the following schools in place of teachers named.

Memoranda of work must be entered upon this blank daily. Double spaces are provided to be used in case service is rendered at more than one school in a day. Mail this report to the superintendent on Thursday preceding pay day.

	Day of Month	School	Part of Day	In Place of	Grade	
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						

DES MOINES PUBLIC SCHOOLS .... Supply Teacher

FIG. 49. Form used by supply teachers in making a report of services
This form when complete has space for twenty days

5. *Time pay roll is due.* This record should be sent in on the last Thursday of each school month with those of the regular teachers.

6. *Delivery of warrants.* Warrants will be mailed to substitute teachers as soon as possible after the first Tuesday of each school month.

C. CUSTODIANS' PAY ROLL

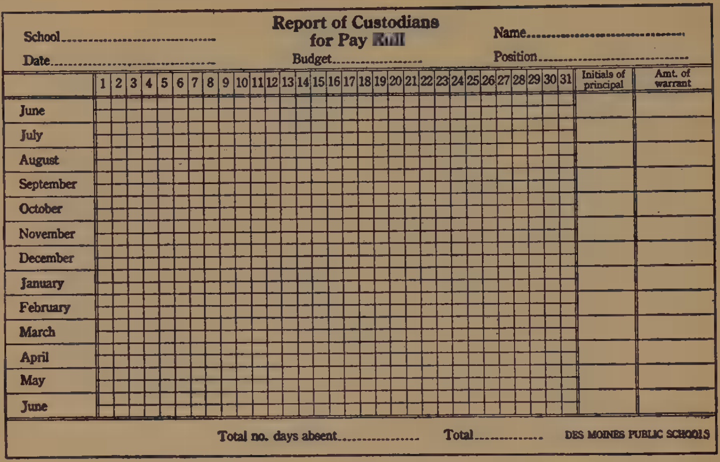
NOTE. Record is kept on the form shown in Fig. 50.

1. *Persons to be reported.* All custodians, janitors, firemen, and helpers regularly employed in the buildings.

2. *By whom reported.* By principals of buildings.

3. *Basis of payment. a. Period.* This pay roll is made bimonthly on the basis of a calendar month including Sundays and holidays.

b. Deductions. In cases of absence for which pay is not allowed by the rules of the Board of Education, deduction will be made at the rate of one thirtieth, one thirty-first, one twenty-eighth, or one twenty-ninth of the monthly pay for each day of absence for custodians of ten-room or smaller buildings. For custodians of larger buildings the deduction for each day of absence shall be one thirtieth, one thirty-first, one twenty-eighth, or one twenty-ninth of the base rate, which is $145.



Report of Custodians for Pay Roll

School..............................

Date..............................

Budget....................

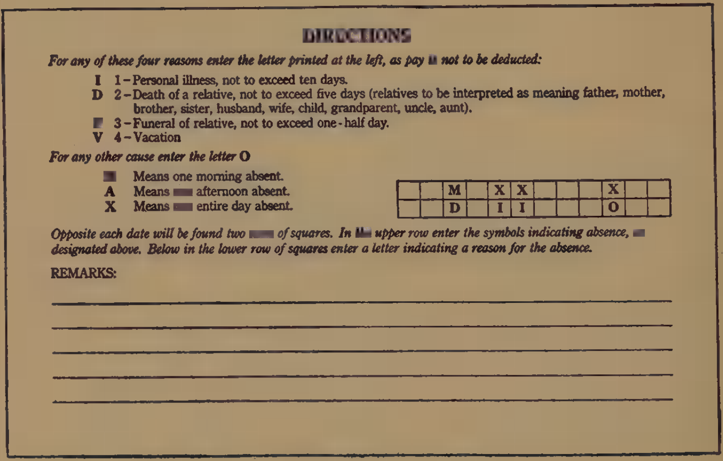
Name..............................

Position..............................

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Initials of principal	Amt. of warrant
June																																	
July																																	
August																																	
September																																	
October																																	
November																																	
December																																	
January																																	
February																																	
March																																	
April																																	
May																																	
June																																	

Total no. days absent.................. Total.............. DES MOINES PUBLIC SCHOOLS

FIG. 50. Form for reporting custodians for pay roll



DIRECTIONS

For any of these four reasons enter the letter printed at the left, as pay is not to be deducted:

- **I** 1 – Personal illness, not to exceed ten days.
- **D** 2 – Death of a relative, not to exceed five days (relatives to be interpreted as meaning father, mother, brother, sister, husband, wife, child, grandparent, uncle, aunt).
- **F** 3 – Funeral of relative, not to exceed one-half day.
- **V** 4 – Vacation

For any other cause enter the letter **O**

- **M** Means one morning absent.
- **A** Means [illegible] afternoon absent.
- **X** Means [illegible] entire day absent.

		M		X	X				X		
		D		I	I				O		

Opposite each date will be found two [illegible] of squares. In the upper row enter the symbols indicating absence, [illegible] designated above. Below in the lower row of squares enter a letter indicating a reason for the absence.

REMARKS:

(Reverse side of Fig. 50)

c. Absences on Sundays and holidays. In considering absences on Sundays and holidays, the following (government) rule will be observed:

If a man is on duty on either the day immediately preceding or immediately following a Sunday or a holiday, he is to be regarded as on duty on that Sunday or holiday.

If he is absent on the day immediately before *and also* on the day immediately following a Sunday or a holiday, he is to be regarded as absent on that Sunday or holiday.

For example, if a man is on duty Saturday but absent Monday, he is counted as present on Sunday; if absent Saturday but on duty Monday, he is counted as present on Sunday; if absent both Saturday and Monday, he is counted absent on Sunday; or he may be absent an entire week but will be counted as present on Sunday if he returns to work on the next Monday morning.

d. Recording absences. The principal will report *all* days of absence by the use of the required symbol in the proper spaces. It is of utmost importance that no inaccuracy occur as to dates. A custodian is considered absent *so long as the substitute is at work.*

4. *Pay for holidays. a. Extra pay.* For services required by the principal on the following legal holidays, on account of school activities, extra pay will be allowed:

Labor Day
Armistice Day
Thanksgiving
Christmas
New Year's Day
Memorial Day
The Fourth of July

b. No extra pay. It is understood that the care and protection of buildings, particularly in bad weather, the clearing of snow from public sidewalks and other duties necessary to care for school property are a part of the regular assignment of work, and that such duties are to be performed when necessary on Sundays and holidays, without extra compensation.

5. *Time reports are due.* The duplicate cards will be sent to the principals the week before pay rolls are due. Records must be copied and certified to and the cards must be sent in time to reach the payroll clerk on the fifteenth of each calendar month, and on the *last* day of each calendar month.

6. *Certificates of illness.* The rule regarding absence on account of personal illness is the same as that for the teachers, and in all cases where illness is recorded as the cause of absence, a certificate made

out in duplicate must be sent to the Superintendent of Buildings, one of which is sent by him to the pay-roll clerk.[1]

7. *Delivery of warrants.* Warrants will be mailed to custodians on the second and the seventeenth of each calendar month, unless a Sunday or holiday falls upon one of these dates, in which case they will be mailed on the following day.

8. *Transfer of janitors.* In case a janitor is transferred from one building to another, the Attendance-Record Card should be sent immediately to the pay-roll clerk, who will send it to the building to which the janitor has been assigned. The attendance record must be up to date when the card is sent in.

D. SUBSTITUTE JANITORS' PAY ROLL

The records for all substitute janitors are kept in the office of the Superintendent of Buildings and pay rolls are submitted by him. (See section *G* below for pay roll for workmen not assigned to one building.)

E. ADMINISTRATIVE AND HIGH-SCHOOL OFFICES

NOTE. Record is submitted on the form shown in Fig. 51.

1. *Persons to be reported.* Superintendent of Schools, Secretary of Board of Education, heads of departments, and all other persons employed in the Administration Building; high-school principals, vice principals and girls' advisers, librarians, registrars, and clerks; junior-high-school principals, vice principals, girls' advisers, and clerks.

2. *By whom reported.* Submitted by heads of departments and those persons in charge of the various offices, by high-school and junior-high-school principals.

3. *Basis of payment.* This pay roll is made once each month on the basis of a calendar month, including holidays and Sundays. In cases of absence for which pay is not allowed, deduction will be made at the rate of one thirtieth, one thirty-first, one twenty-eighth, or one twenty-ninth of the monthly pay for each day of absence. For the rule explaining absences on Sundays and holidays see 3, *c*, under "Custodians' Pay Roll."

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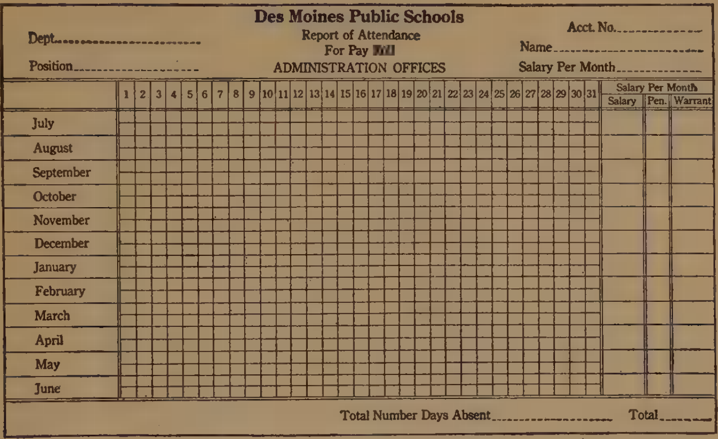
[1] The form suggested in Fig. 47 may be used for reporting excuses for absence.



Des Moines Public Schools
Report of Attendance
For Pay [illegible]
ADMINISTRATION OFFICES

Dept.........................
Position.........................
Acct. No.........................
Name.........................
Salary Per Month.........................

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Salary Per Month		
																																Salary	Pen.	Warrant
July																																		
August																																		
September																																		
October																																		
November																																		
December																																		
January																																		
February																																		
March																																		
April																																		
May																																		
June																																		

Total Number Days Absent......................... Total.........

FIG. 51. Form for reporting workers in administrative offices for pay roll

The reverse is the same as the reverse of the form shown in Fig. 46

4. *Time reports are due.* The card must be returned to the pay-roll clerk with records duly certified to two days preceding the close of each calendar month. (See "Calendar of Activities.")

5. *Certificates of illness.* In all cases where absences have occurred on account of illness the certificate must accompany the report.[1] (See 7 under "Teachers' Pay Roll.")

F. AUTOMOBILE ALLOWANCE

Each year upon recommendation of the Superintendent automobile allowances are granted to supervisors, heads of departments, visiting teachers, and others in the administrative offices. The list of these allowances is filed in the office of the pay-roll clerk who makes up this pay roll at the close of each calendar month.

G. CRAFTSMEN'S PAY ROLL

NOTE. Record is submitted on the form shown in Fig. 52.

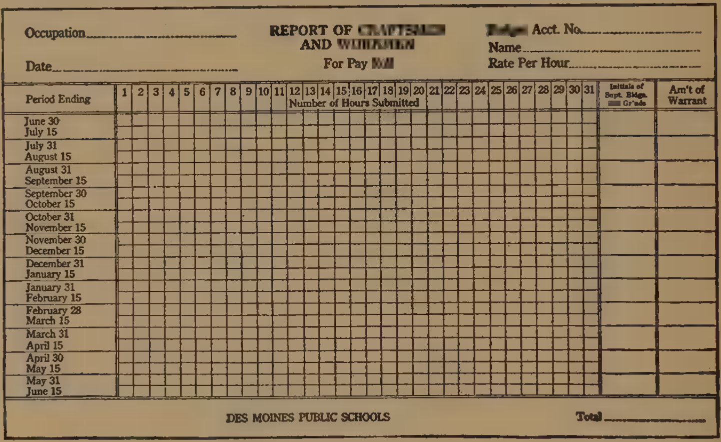
1. *Persons to be reported.* This pay roll includes workmen not assigned to one building: electricians, painters, carpenters, plumbers, steam fitters, and other workmen.

---

[1] The form shown in Fig. 47 may be used for this purpose.

2. *By whom reported.* By Superintendent of Buildings.

3. *Basis of payment. a. On basis of calendar month.* Some of the persons included in this list will be paid on the basis of a calendar month, subject to the same privileges and obligations regarding deductions for absence, sick-leave, and over-time service as the custodians. (See 3, *b* and *c*, under "Custodians' Pay Roll.")



Occupation..........................

Date..........................

REPORT OF [redacted]
AND [redacted]
For Pay [redacted]

[redacted] Acct. No..........................

Name..........................

Rate Per Hour..........................

Period Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Initials of Supt. Bldgs. [redacted] Gr'ade	Am't of Warrant
												Number of Hours Submitted																					
June 30 July 15																																	
July 31 August 15																																	
August 31 September 15																																	
September 30 October 15																																	
October 31 November 15																																	
November 30 December 15																																	
December 31 January 15																																	
January 31 February 15																																	
February 28 March 15																																	
March 31 April 15																																	
April 30 May 15																																	
May 31 June 15																																	

DES MOINES PUBLIC SCHOOLS

Total..........................

FIG. 52. Form for reporting craftsmen and workmen for pay roll
On the reverse of this form there is space for remarks

b. On hourly basis. Other persons are paid on an hourly basis for the number of hours of service rendered. These persons are allowed no vacations nor leaves of absence on pay for any cause.

All records are kept in the office of the Superintendent of Buildings and Grounds.

4. *Time pay roll is due.* This pay roll must be sent in to the payroll clerk on the 1st of each calendar month and again on the sixteenth of each calendar month.

5. *Certificates of illness.* In those cases where absence has occurred on account of personal illness, certificates of illness [see the form shown in Fig. 47] must be sent in to the office of the Superintendent of Buildings in *duplicate*.

6. *Extra car fare.* When the assignment of work makes necessary the payment of extra car fare, the amount over and above the regu-

lar cost of the trips to and from his home will be refunded. If car tickets have not been issued, the report of this extra amount must be given to the pay-roll clerk each month with the pay roll in order that it may be included in the amount of the warrant.

7. *Delivery of warrants.* Warrants will be distributed on the second and the seventeenth of each calendar month, unless a Sunday or holiday falls upon one of these dates, in which case they will be distributed on the following day.

H. BUS-DRIVERS

1. *Persons to be reported.* Men who drive the busses.

2. *By whom reported.* By the principals of those buildings to which the busses come.

3. *Basis of payment.* This pay roll is based upon the calendar month.

4. *Time pay roll is due.* The last day of each calendar month.

5. *Delivery of warrants.* Warrants will be mailed out on the second of each calendar month.

I. EVENING-SCHOOLS PAY ROLL

1. *Persons to be reported.* Director of evening schools, principals, teachers, and janitors who work in the evening schools.

2. *By whom reported.* By the principal of each evening school — must be approved by the director.

3. *Basis of payment.* Payment is made on the basis of the number of evenings services are rendered — usually three evenings per week or twelve evenings per month for those regularly employed.

4. *Time pay rolls are due.* The cards properly filled in and certified to must be sent to the pay-roll clerk on *Thursday* of the last week of each *evening-school month.*

5. *Delivery of warrants.* Distributed by the Director on the following Monday.

J. SUMMER-SCHOOLS PAY ROLL

NOTE. Record is submitted on the form shown in Fig. 46.

1. *Persons to be reported.* This pay roll includes supervisors, principals, and teachers in summer session, playground and swimming-pool teachers and assistants.

2. *By whom reported.* By supervisors and principals.

3. *Basis of payment.* On basis of twenty-four-day month.

4. *Time pay roll is due.* Pay-roll cards must be sent to pay-roll clerk on the last Thursday of each school month.

5. *Delivery of warrants.* Warrants will be sent out on the last Saturday of the school month.

K. Pay Rolls for Other Persons

Conditions sometimes arise which make necessary the employment of persons not included in the regulations stated above, to perform service in some building or special department, compensation for which must have been included in the budget affected. In such cases the record of the time of service shall be submitted by such persons to the principal or head of department for approval and then sent to the pay-roll clerk.

Preparing and auditing warrants. As soon as the record of service or pay roll, properly certified by the principal or other appropriate head as to its correctness, reaches the pay-roll office, it should be carefully checked regarding its accuracy. This checking by the central office should be made with especial reference to (1) the authority for employment and for the rates of compensation, and (2) the accuracy of all computations, such as the amount of each of the pay-roll warrants. Many of the larger school systems maintain a separate auditing department for all work of an auditing nature. Whatever the size of the school organization, every pay roll should be carefully audited before the warrants are prepared and distributed.

After the checking, auditing, and approval of the pay roll by the proper authorities, the general warrant covering the amount of the total pay roll for the school system and the subwarrants or checks for the several employees may be prepared.

Use of labor-saving devices. To speed up the compilation of the pay roll, many of the larger school systems, particularly those which have several hundred employees to pay regularly, use mechanical devices, such as addressographs and signographs, for as much of the work as possible. They use the addressograph plates in placing on the pay-roll forms and the warrants such information as the name of the employee, the rate of compensation, the date, and the serial number of the warrant. The addressograph plates are filed in boxes by schools, departments, divisions, or other pay units, and are corrected, as needed, each month before they are placed on the addressograph machine. Signographs are used to save labor and time in signing warrants. Many systems use a check-protector to prevent forgery.

Delivery of warrants. When the warrants have been prepared and audited, they are ready to be delivered to the appropriate pay units. This delivery should be made on the day of the close of the pay period. In delivering them, the warrants for a given pay unit may be placed in a sealed envelope and handed to the principals at the principals' regular meeting [1] or delivered by registered mail or by messenger to the unit. Where the pay unit contains the names of only one, two, or a few persons, the warrants may be mailed direct to the individual employee, or he may call in person for his warrant.

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BOBER, W. C. "Graphic Planning of a Pay-Roll Procedure," *Industrial Management* (November, 1920), Vol. LX, pp. 336–337.

Shows graphically a procedure to use in making a pay roll for an industrial concern; the discussion has much of pertinence for school-pay-roll procedure.

GODDARD, C. A. "Putting the Pay Roll on an Automatic Basis," *Scientific American* (September 18, 1920), Vol. CXXIII, p. 275.

A picture and a description of a machine that makes out the pay roll.

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[1] Des Moines delivers the teachers' warrants to the principals at the regular principals' meetings on the first Tuesday of each school month at 8.45 A.M.

CHAPTER XIX

BUSINESS ADMINISTRATION OF RURAL SCHOOLS

Lag of Rural-School Administration

The reader has no doubt observed that most of the illustrations included in this book have been taken from city-school administration and that most of the readings contained in the lists of Selected References at the close of the several chapters are discussions of the administration of city schools; only a few illustrations and readings have been selected from rural-school administration. Unless this emphasis on the city schools is explained, we risk being accused of slighting the rural schools — schools which have nearly as many children enrolled in them and require for their operation almost as much money as the city schools.

Rural-school administration has been infrequently referred to, because meritorious practices — compared with the city schools — are difficult to find there. In both their educational and their business administration, the rural schools have lagged far behind the city schools. During recent decades the development of a science and an art of city-school administration has moved apace, but in rural-school administration such development has lagged. These remarks apply with particular cogency to the business administration of the rural schools.

In practically every comparison which is made of rural and city schools, the latter have the advantage. The city schools have more adequately trained and experienced teachers, more adequate buildings and equipment, longer terms, richer curricula, more rational administrative units, and a more adequate and efficient administrative and supervisory personnel. It is common knowledge that, compared with their city cousins, the rural children are hardly receiving a square deal in education.

It is the purpose of this chapter to indicate some of the more fundamental defects in rural-school administration today and to suggest the direction which attempts to correct these defects should take. Since this volume is a treatise on the business administration of the schools, we shall be concerned only with those defects and remedies which pertain to business administration.

With respect to their business administration the rural schools have one great shortcoming — the archaic administrative units under which they are organized. Before rural education can realize its potentialities, before it can keep pace with urban education, that handicap must be removed. In the following pages that shortcoming will be discussed, and the direction which attempts to correct the shortcoming should take will be indicated.

Tendency toward Larger Administrative Units

In the pristine days of education, it was universally agreed that education was a function to be performed entirely by the local community; the local community was permitted by the state to pursue a laissez-faire policy in education. If the people of a community desired schools, they could establish them; if they did not choose to have schools, their decision was not questioned. In those days there was no compulsion on the part of the state that schools be provided.

Leaving the decision upon the establishment of schools entirely to the community did not, however, long obtain, particularly in Massachusetts. As early as 1647, only forty years after the establishment of the first permanent English settlement in America, Massachusetts enacted a law requiring every community having fifty or more householders to employ a teacher to instruct all children who chose to be taught, to read and write. That law is the genesis of the thousands of laws which have been enacted by the American states for the control and organization of education. It was the beginning of state supervision and control of education; it was the first legal evidence of the belief that education is so important that the making of provision for it cannot be left to the whims of the local community.[1]

Since the enactment of that law, thousands of others have been enacted, all of which are calculated to make the schools more efficient. It was not until 1852, however, that an American state enacted a law which required children to attend school; Massachusetts passed that first compulsory-attendance law, just as she has been the pioneer in enacting many educational laws which have become a part of the laws of the several states.

This brief history of school legislation has been given, because for a complete understanding of the present school organization, it is necessary to know how the organization has grown up. The American school system is the result of a gradual evolution, an evolution extending from early colonial days to the present. In many of its features it seems that, like Topsy, our school system has "just growed." Although it can hardly be said that the "last word" on the development of an efficient school organization has been spoken,— perhaps the last word shall never be spoken,— nevertheless it cannot be denied that much progress has been made, and is being made, in the evolution of a democratic and an efficient school system.

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[1] An earlier law of Massachusetts, enacted in 1642, required parents to see that their children could read the Bible. In that law, however, there was no requirement for the establishment of a school or for the employing of a teacher by the community.

One of the outstanding movements in school administration in America has been, and is, the tendency toward the centralization of educational control. Probably the most characteristic feature of this movement has been, and is, the tendency toward increasing the size of the unit for the organization, administration, and support of the schools. This centralization has proceeded apace in both the rural and the city schools, particularly in the latter.

It has already been remarked that in the early days the local community was everywhere the unit for the organization, administration, and support of schools. In those days it was believed that the smaller the unit, the more desirable it was for school organization and administration. In those days the school district, whether urban or rural, usually comprised a territory of only a few teachers, often only one teacher. In city-school administration, for example, there was not, as there is today, one board of education which looked after the educational interests of the whole city. Instead each ward of the city had its own board of education, and each ward administered its schools without reference to any other ward. Each ward levied its own taxes for schools and spent the revenue in any way it chose. It erected buildings, procured teachers, formulated curricula, selected textbooks, and employed administrative and supervisory officers without coöperation from the other wards of the city.

It was soon discovered, however, that the ward was pedagogically and financially unsound as a unit for the organization and administration of city schools. Whereas ward control of schools was prevalent in the early days of education, it has in recent years passed into limbo. Today there is not, so far as is known, a city in the United States which makes the ward the school administrative unit. Even the practice of selecting the members of the board of education to represent various wards has become almost extinct. School-board members today are almost universally selected to represent the interests of the whole city, not the interests of a particular ward in which the members happen to live.

It is interesting to observe that the city has become the unit for the administration of schools even in the largest cities. Thus the city is the school administrative unit in New York, Chicago, Philadelphia, St. Louis, Detroit, and Cleveland, just as it is the unit in "Main Street." In each of these metropolises one board of education and one staff of administrative officers look after the educational interests of the whole city, — this in spite of the fact that often the area includes several million people and comprises several square miles. Such cities as New York, Chicago, and Philadelphia are much more populous than the typical American state, yet one board and one administrative organization directs the educational interests of these cities, and, what is particularly worthy of note, directs them in an efficient manner. Moreover, the educational problems of such cities are multitudinous, diverse, and complex; their populations are heterogeneous, and the social, educational, and economic backgrounds of their people are widely different.

The fight for an efficient administrative unit for the city schools has been everywhere won. Everywhere today the city is the unit for the administration of city schools. The rural schools, on the other hand, are still in the process of evolving a rational administrative unit. Compared with the administrative unit of the city schools that of the rural schools is still in its infancy; it has hardly outgrown its swaddling clothes. There are still thousands of rural school districts which have only one one-teacher school, and there are many thousands more that have only a few teachers. The administration of the schools of these small districts may be compared with the administration of schools in the cities in the days when the ward was the unit rather than the city. The types of units under which the rural schools of the several states are administered are shown in Fig. 53. From this figure it is observed that the county unit has been generally adopted by the states of the South, and the town, township, or district system obtains in other sections.

The hopeful thing about rural-school administration is that the administrative unit is increasing in size and is becoming more rational in other ways. In all states the tendency is to enlarge and otherwise rationalize the administrative unit. School districts having only one one-room school or a few such schools are rapidly becoming extinct. Legislation for the merging of such districts with other districts is being everywhere proposed and in many instances adopted. At the time of writing the legislature of one state — Ohio — has under consideration the following bills, some of which have fair prospects of being enacted into laws: (1) Districts having a tax duplicate of less than $1,000,000, or less than 100 school children, shall be merged with other districts. (2) Any county shall be permitted by vote of the people to abolish all rural boards of education and to place the schools under the control of the county board of education.

The state in which this legislation is being proposed now has hundreds of school districts which are absurdly small and grotesque in shape. If the first bill mentioned above is enacted into law, approximately six hundred of these small districts will be abolished. The state now has approximately twenty-three hundred rural school districts and also one hundred and fifty city school districts.

Advantages of a Large Administrative Unit

The tendency in both theory and practice is to increase the size of the unit for the administration of the rural schools. Let it be hoped that this tendency will continue until a unit such as the county is established in every state.

A full-fledged county unit implies the abolition of all school-district lines and the boards of education of these smaller units, and the merging of all of the units into a county unit. For this larger unit, one board of education is selected to administer education in the whole county. This board fixes a tax rate which is uniform throughout the county; erects, maintains, and operates school buildings; approves courses of study and textbooks; and selects teachers and other employees. In brief, this board directs education in the whole county just as a city board of education today directs education in a city.

A larger unit, such as the county, would beget greater pedagogical and financial efficiency; it would secure a better type of education for the children and would probably secure it at less expense. By and large, the small rural districts that are prevalent today are no doubt responsible for the waste of millions of dollars annually. A larger unit, such as the county unit, would have four outstanding advantages over the present small units. These advantages are discussed herewith.

Economy. A county unit would make possible a more efficient business administration of the schools. With such a unit, educational and business policies could be adopted for the whole county; schools, both elementary and high, could be located on a more rational basis; systems of pupil transportation could be more efficiently organized; school equipment and supplies could be purchased in larger quantities and therefore at a cheaper price; and a business

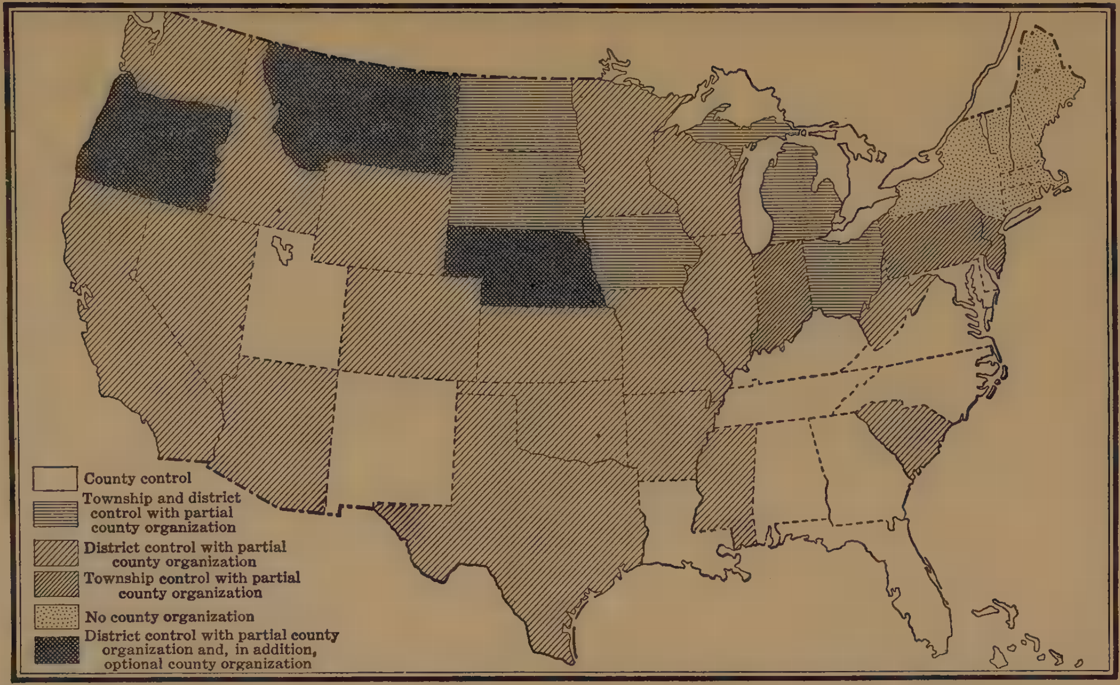
County control
Township and district control with partial county organization
District control with partial county organization
Township control with partial county organization
No county organization
District control with partial county organization and, in addition, optional county organization

FIG. 53. Geographical distribution of the different types of rural-school control
From B. J. Burris's *County School System: how Organized and Administered*, p. 39

manager could be employed to look after the school business of the whole county. One does not need to stretch the imagination far to see that thousands of dollars could be saved annually in the typical county by the organization which has just been proposed. An illustration of the waste incurred by the small district units prevalent today is seen in the location and distribution of high schools in practically every state.

Let us observe the location and distribution of high schools in one state. The state in question has approximately twenty-five hundred school districts, twenty-three hundred of which are rural, and its laws permit each school district to establish at least one high school. In accordance with this legislation, approximately twelve hundred high schools have been established, about one thousand of which are in the rural districts. Thus the typical county of this state has fourteen high schools, whereas half as many would be more appropriate from the standpoint of pedagogical and financial efficiency. By far the majority of the schools have small enrollments; many of them have less than twenty pupils. Moreover, a large percentage are located within one mile, two miles, or three miles of another high school. Such a large number of high schools is wasteful. In the first place, it is difficult to have an efficient school with a small enrollment. In the second place, if an attempt is made to provide a satisfactory type of instruction, too high a per pupil cost results.

A county unit would enable the county board of education to formulate a high-school program for the whole county and to locate the high schools with the needs and interests of the *whole county* in mind. A county board of education would be expected to bring about a change in the location and distribution of schools such as is shown in Fig. 54. This figure is taken from the report of the recent

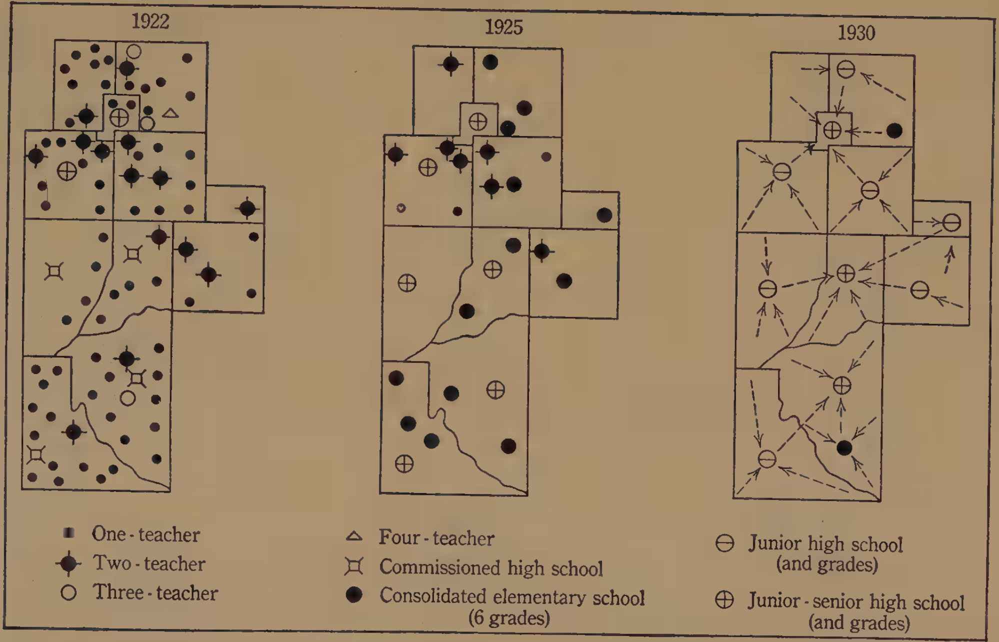
1922
1925
1930
▪ One - teacher
Two - teacher
○ Three - teacher
△ Four - teacher
⌑ Commissioned high school
● Consolidated elementary school (6 grades)
⊖ Junior high school (and grades)
⊕ Junior - senior high school (and grades)

FIG. 54. Present and proposed organization of schools in Clay County, Indiana

survey of the rural schools of Indiana.[1] The left-hand side of the figure shows the type and location of the various schools at the time of making the survey, 1922. The survey report suggested that by 1925 an arrangement such as shown in the middle figure would be attainable, and that by 1930 the schools of the whole county should be located on the somewhat ideal basis as shown in the right-hand side of the figure.

The picture of inefficiency which has just been sketched for the location and distribution of high schools could also be sketched for such matters as pupil transportation, the operation and maintenance of school buildings, the purchase of equipment and supplies, and budgeting and financial accounting. To elaborate upon these matters would be trite.

Better administrative personnel. The county unit would make it possible to provide an efficient administrative and supervisory personnel. Under the district or township unit, making provision for an adequate administrative and supervisory personnel is too expensive. The result is that such a personnel is generally *not* furnished. If it *is* furnished, the qualifications of such administrators and supervisors are usually not of a high character.

In almost half the American states today county superintendents are elected by popular vote, and in most instances they are elected at the regular election on a partisan ticket; thus the incubus of "politics" attaches to the office. Moreover, most states require the county superintendent to be a resident of the county that selects him. This requirement levies a high protective tariff on brains. A person who is not a resident of the county in need of a superintendent cannot be selected even though he be an educational Solomon. "Political" considerations and residence restrictions are seldom thought of in the selection of city superintendents, but in the selection of county superintendents they are still potent. The county superintendency cannot realize its potentialities and rural education cannot be what it should be until these handicaps are removed. "As is the superintendent, so is the school system" is a truism. One of the largest needs of the rural schools is educational leadership. The county unit would make that leadership more possible.

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[1] Public Education in Indiana, p. 223.

Moreover, the members of a county board of education would probably be better qualified for their work than are most members of district, town, or township school boards. If the county unit obtained, the five or seven best-qualified persons in the county could be selected irrespective of their residence. This would make it more possible to secure individuals of education, public spirit, and vision; frequently it is difficult to find such individuals within the confines of the small school district. The members of the school boards of these small districts too often believe their function is to *run* the schools. They forget that their function is not to run the schools, but to see that they are run. Too often they perform, or attempt to perform, functions of an executive nature, functions which should be performed by professional experts, such as superintendents, principals, and teachers.

Members of county boards of education, being persons probably of larger success, education, and vision, would be more apt to know the proper functions of a board of education. They would more likely know that their function was to see that the schools were run, not to run them. They would realize that their chief obligation was to formulate policies and to see that those policies were put into operation. They would not be so likely to undertake the execution of those policies, but would prescribe such duties for their professional experts.

Under the school organization which now obtains, many counties have two or three hundred rural-school-board members. If each of these members is paid an honorarium of ten, twenty, or thirty dollars a year and the clerk of each board is paid fifty, one hundred, or two hundred dollars a year, obviously several thousand dollars, sufficient to pay the salaries of efficient administrative leaders, is expended.

Large and unnecessary as it is, the waste in salaries sinks into insignificance when compared with what is wasted by the decisions of those who secure the salaries. We do not imply that they are maliciously wasteful; on the contrary, we opine that they are leaders of their communities in honesty and in other regards. Their handicap is that they do not know how to *administer* a school and yet attempt to do so. How long will it be until the belief that school administration is a technical function, which should be performed by professional experts, sinks into the consciousness of our legislators and the public generally?

Equalization of educational opportunity. The county or a similarly large unit would be expected to give all pupils within such unit equal educational opportunities. One of the worst features of the district unit is the educational inequality which it begets. Under small units, the children in one school district of the county may have splendid school facilities, whereas those in another district, which may be a neighbor to the first, may have very inferior school advantages. It is everywhere known that the chief cause of the inequalities in educational opportunities is the difference in wealth among various communities. The per pupil wealth in one school district of a county is often many times as much as the per pupil wealth in another district. At present the quality of education which the pupil receives depends largely upon where the pupil lives. The county unit would have the beneficial result of placing the wealth where the children are.

Equalization of the tax burden. The county unit would equalize the tax burden for schools throughout the county. Under this unit, the support of the schools of the county would be a county-wide obligation; every taxpayer in the county would pay the same rate of taxation for schools. Under the district unit, the tax rate in the several districts of a county often varies widely. The people residing in one school district may pay a tax rate of only one or two mills on the dollar and yet have efficient schools, while the people residing in another district in the same county may pay a tax rate of as much as fifteen mills on the dollar and yet not have good schools.

Business Personnel for the Rural Schools

In Chapter III it was remarked that the number and kind of business employees for a school system should be determined by the size of the system. The larger the system the greater the number of business employees there will need to be. In a small county — for example, one with approximately fifty teachers — the county superintendent of schools will often have to administer without assistance the business affairs as well as the educational affairs; he will have to get along without the help of a business manager, just as the superintendent of schools in the small city gets along without one.

When a county has, for example, from seventy-five to one hundred teachers, an assistant superintendent in charge of business should probably be employed. Since a county of that size would not likely be able to employ more than one business official, the first employee should be as nearly a Jack-of-all-trades as possible. Under the direction of the county superintendent of schools he should have the responsibility of looking after all matters of school business, such as the construction of buildings, the maintenance and operation of buildings, the purchasing and distribution of supplies, the transportation of pupils, the paying of employees, and the keeping of financial records.

In larger counties, the business manager should be given assistants similar to those found in the city school systems. Thus in counties having several hundred teachers it would probably be advisable to have different persons in charge of each of the following departments: school buildings, purchasing and distribution of school supplies, and school financial accounting. In still larger counties the departments just mentioned might be subdivided; for example, the department of buildings might have someone in charge of school janitors and the operation of school plants, someone in charge of school-building repairs, and possibly someone in charge of architectural work. In hundreds of counties an efficient business personnel would be able to effect economies amounting to several times the cost of the personnel.

What constitutes a desirable business personnel for the rural schools must be determined largely on a basis of theory, because no good practice exists in such schools. We know of no county in the United States that has a business organization equal to the organizations found in many cities. Whereas practically all the large and medium-sized cities have school-business managers and business departments, no county system of schools in the United States, so far as we have been able to ascertain, has a full-fledged business organization. No county, so far as we know, has progressed further than the appointment of a clerk whose functions are limited to keeping the financial accounts of the schools. Here, then, is an outstanding opportunity for educational pioneering and leadership.

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CHAPTER XX

ADMINISTRATION OF SCHOOL TRANSPORTATION

Evolution of the Transportation Movement

No movement in rural education within recent years has received greater impetus than that of school consolidation, and probably no factor has contributed more to its success than the development of a successful plan for transporting pupils. Good roads and the advent of safe and comfortable conveyances have made it possible to bring pupils together from a radius of several miles. Thus elementary schools, and occasionally high schools, have been organized with a sufficient number of pupils in each grade or subject to be pedagogically and financially efficient.

According to information collected by the United States Bureau of Education, there were 14,913 consolidated schools in the United States in 1924. Since 1922 the one-room schools have been decreasing at the rate of more than five thousand a year, while the consolidated schools have been increasing at the rate of almost one thousand a year. Although the movement is yet a strong one, the most active period of consolidation seems to be over; a steady growth, a growth dictated by facts and sound judgment rather than by sentiment or propaganda, is the rule today. To and from these thousands of consolidated schools, more than a million pupils are transported daily.[1]

With the people, the idea of school transportation at public expense has developed from a state of opposition to a positive belief in its justice and efficacy. The fight for school consolidation and for so-called "free" transportation of pupils who live a considerable distance from the school building has been won almost everywhere. Following are the chief advantages usually claimed for the transportation of pupils, particularly when the service is provided under excellent conditions:

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[1] Timon Covert, Consolidation of Schools and Transportation of Pupils, *Rural School Circular No. 16*, United States Bureau of Education, April, 1926.

1. The pupils are protected from the rain, snow, wind, and other elements; thus they are more comfortable and healthy.
2. The pupils have more time at home in the morning and in the evening; this is particularly true when motor transportation is used.
3. There is more regular attendance and punctuality of pupils.
4. There is supervision of pupils while going to and from school.
5. The pupils are not depressingly tired when they arrive at school and when they return home; thus they can spend their energies on their school work and on home duties.

At present, the transportation of pupils at public expense — or the payment of board and room in lieu thereof — is either required or permitted by the laws of practically all the states. The most common distance beyond which transportation is made compulsory or permissive, usually compulsory, is two miles.

Not only have practically all states enacted laws making transportation either mandatory or permissible, particularly in the elementary schools, but several states give state or county financial aid for this service. The consensus of opinion is that this is a service which merits encouragement, and that the extra expense to the district should be met in part or in whole by the state or the county.

The success of the school consolidation movement depends largely upon an efficient system of transportation. The remainder of the discussion, therefore, will deal with how to administer a system of transportation.

The Transportation Route

The transportation route is the foundation of the transportation system, and it must be mapped out with considerable care and intelligence a few days or a few weeks before the opening of school. A poorly planned route may result in a financial waste to the district, or it may become a source of friction and of dissatisfaction to the patrons of the district.

Preliminary to the planning of the routes, a map of the school district should be constructed. The map should be large enough to show clearly the condition of the roads, the location of the bad corners and turns in the roads, the railroads, and the homes of the pupils to be transported. A map drawn to the dimensions of eighteen inches square, or approximately that, will serve the purpose very well.

With a map of the school district and the other necessary information, the routes can then be marked in. In the following paragraphs are given directions for laying out the routes. After completion, the map should be hung in some convenient place in the school building, — for instance, in the superintendent's office, — where it may be readily consulted by teachers, drivers, pupils, or anyone else interested. Changes made in the routes should appear on the map, so that it will always be up to date.

Directions for Laying out Transportation Routes [1]

1. Outline the school district on the map, placing the school building in the center of the map. Heavy lines may be used as one-half mile, one mile, or two miles, depending upon the size of the district.
2. Draw in the creeks, rivers, and railroads.

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[1] Adapted from suggestions given in a booklet published by the Wayne Works, Richmond, Indiana.

3. Draw in (to scale) the roads in the district, marking them *A*, paved road; *B*, good gravel road; *C*, fair road; *D*, poor road.

4. Mark bridges with ⌓, fords with *S*, and grade crossings with *X*.

5. Locate the home of each family. Mark those homes that have children: □. Where homes have pupils to be transported, put the number of pupils *inside* the figure: $\boxed{2}$. If children are *not* to be transported, put the number at the *right side* of the figure: □1. If children are under school age, put the number at the *left side* of the figure: 3□. This will let one plan for the future at least six years.

6. Total the number of pupils to be transported. Using the spaces between the heavy lines as two-mile, one-mile, or half-mile distances, determine the total mileage of the shortest routes to reach all these pupils.

7. Lay out on the trial map tentative routes. Avoid "back-tracking" wherever possible. Unless the school itself takes care of the busses over night, the starting point of the routes will be the homes of the drivers, which cannot be known until the drivers are selected. The routes, unless the school provides a garage for the busses, should begin as near as possible to the home of the farthest pupil.

8. Total the number of pupils on each route. This total will give the capacities of the busses required. Consider the advisability of getting bus bodies of larger capacity rather than smaller. The population is usually growing. Plan always for the future.

9. Check each route, adjusting if necessary to keep its length — depending upon the condition of the roads, etc. — within the time limit permissible.

10. Lay out the proposed routes on a new map, this map to be held as a master map by the superintendent.

11. From the master map, lay out separate route cards for each driver, marking the exact route of the driver in *red ink*.

The length of a route should be determined by such local factors as the means of locomotion for the school bus, the condition of the roads, the number of stops to be made, and the number of pupils to be transported. Except in unusual cases, a route should not require more than an hour for its traversing; a shorter time is of course more desirable. Parents justly object to a long period of travel for their children. If school officials can remove the objection to the time required to go to and from school, the chief objection to transportation will have been eliminated. The pupils living farthest from school should be collected first; the return trip should be made preferably in the reverse order.

The route should be planned over as good and as safe roads as possible and over the shortest distance. The safety of the pupils should always be the first consideration. Pupils should not be required to walk more than one fourth or one half of a mile to the conveyance, except in unusual cases. School busses can hardly be expected to drive up lanes for children, or to travel over particularly muddy or otherwise bad roads, especially if the walking distance is not long. To avoid dissatisfaction the conveyance should, if it is at all possible, pass the home of every child to be transported. It is difficult for the pupils and their parents to see why the conveyance cannot stop at every door.

Early in the school year, if he can find the time to do so, the superintendent or the principal should traverse the route either with the driver or closely following the driver. This inspection and supervision may often enable the superintendent or principal to make suggestions for the improvement of the route or some other phase of the service. The principal or the superintendent of the schools is the chief engineer of the transportation system, and as such he must be acquainted with the various factors that beget an efficient system.

A route which is the best for the current school year is not always best for the next year. This fluctuation may be caused by a shifting school population, a changing condition of roads, or similar factors. Frequent revision of routes, even during the school year, may therefore be necessary.

Since they are much more economical than single routes, double routes should be arranged for whenever practicable. By double routes is meant the use of one driver and one conveyance to traverse two routes. Where the roads are good and where the distance to be traveled to secure a load of pupils is not too great, double trips will often be feasible; at least the plan is in operation in many school districts, particularly in thickly populated school districts, with apparent success. One objection to double routes is that one load of pupils must be brought to school early; moreover, one load must remain a short time after school. If some plan could be devised to remove this objection, the double route would certainly become more common. A school program can frequently be worked out which permits those pupils who must come early to begin their class work earlier and complete it sooner than the pupils who come on the second trip. With double routes, proper supervision of those pupils who must come early and of those who must remain late has to be provided. When double routes are used, those pupils who come early in the morning should be the first to go home when school closes in the afternoon.

Transportation of some pupils on automobile stages or on electric or steam railways can sometimes be arranged. When such private conveyances reach desirable standards and when financial economies can thereby be made, they should be used. Often private automobile stages will gladly rearrange their routes and make a reduction in their regular fare to accommodate school children; electric railways will also frequently coöperate by reducing the fare. Before engaging the use of such conveyances, however, school officials should assure themselves that the safety and the comfort of the children will be properly looked after, that the children will arrive at school and be returned home at a regular and within a reasonable time, and that the cost of such private transportation is no higher, considering the accommodations, than that of public transportation.

The Driver's Qualifications

Because the pupils are under the jurisdiction of the driver for a considerable part — often one third — of the school day and because, while the children are with him, he is responsible for their safety, comfort, health, and happiness, much care must be given to the selection of the driver. In selecting drivers for school busses, school officials need to use some of the same care that they manifest in selecting teachers. At the earliest possible moment, a licensing plan for drivers similar to that for teachers should be developed. So far as is known, such a license is now required in only one state, Ohio; even in Ohio, the standards that some counties have for issuing these licenses are often low.

Because of the small pay, good drivers are frequently difficult to obtain. The successful farmer or the best citizen does not choose to spend, or cannot afford to spend, his time performing this service. In many communities the result is that the less responsible citizen is the one to whom the contract for the transportation is being given. J. F. Abel[1] suggests that the following factors, among other matters, should be considered in choosing school bus-drivers:

1. *Physical fitness*. The driver must be strong enough to handle the bus easily, must have no serious defects of sight or hearing, and must be quick and precise in thought and muscular response. This last-mentioned point is very important. People who respond too slowly or uncertainly, and those who respond too quickly and carelessly ought not to be trusted with bus loads of children.

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[1] Take No Risks, *Rural School Leaflet No. 31* (June, 1924), p. 4. United States Bureau of Education.

2. *Experience.* It should be an absolute rule that no driver will be employed who has not had considerable experience in driving and handling large cars. Moreover, if he is not familiar with the particular kind of bus he is to use, he should be required to practice with it or one of familiar make until he can handle it automatically. Any uncertainty on his part as to how to manage the car greatly increases the chances of accident.

3. *Moral character and ability to control children.* The driver must be one whom the children can respect. He has charge of them while they are en route. The need for prompt, implicit obedience on the part of the children is greater in the bus than it is in the schoolroom. A driver that cannot maintain discipline and exact such obedience should not be continued in the service. If he is needlessly careless in attire, is profane, or uses tobacco while on duty, he is as undesirable in the school bus as he would be in the schoolroom.

Mature men with the qualifications suggested by Abel make the best drivers; drivers having children in school who ride in the bus are especially desirable. Older high school boys frequently make acceptable drivers, though they often find discipline a difficult problem. Women also frequently make excellent drivers, though some parts of the service — for example, the changing of automobile tires — are too heavy for them to perform.

Many school districts employ some of their teachers to serve as drivers. Such a policy has the advantage of giving the pupils splendid supervision and the teachers an outdoor diversion and extra pay. The question may well be raised, however, as to whether the teacher who performs this service does not do it at the expense of teaching efficiency. It is possible that he could better use the time spent thus in recreation or in preparing for his regular teaching work. Nothing should be permitted to detract from teaching skill.

Stipulations in the contract for the transportation of the pupils should be made whereby the board of education or the superintendent of schools has the right to approve substitute drivers. School authorities take too big a risk when they permit drivers to select their substitutes without securing the approval of the proper authorities. School transportation service has been practically free from accidents and other unfortunate occurrences. No risks should be taken which might mar this splendid record.

The driver should be made to realize that in the performance of his duties he is responsible to the one directly in charge of the school; that is, the principal or the superintendent. Moreover, it should be made clear both to him and to the pupils whom he transports that while in the conveyance the pupils are under his supervision. He should be held responsible for reporting to the principal or the superintendent any infractions of rules or any pupils who need disciplining. While on the way, however, children should not be expected to be "statues"; they should be permitted to be happy — even permitted to have a good time. Rowdyism of course should be taboo.

If the community hires several drivers, the plan of appointing one of the drivers to act as head driver is worth considering. Under such a plan it becomes the head driver's duty to maintain, under the direction of the superintendent or principal, a general supervision over the other drivers and over the conveyances.

The Driver's Contract

As a matter of good business and to avoid misunderstandings, no driver should be employed except under a written contract. Usually, in letting the transportation work bids should be advertised for; however, as in asking for bids on any other kind of service, the board of education should reserve the right to reject any and all bids. An irresponsible individual should not be given a contract even though his bid were much lower than the other bids. School officials cannot afford to risk endangering the health and the safety of the pupils who are placed in their care.

Many school officials deem it good business to require contractors to take out automobile liability insurance, the cost of which is borne eventually, of course, by the school budget. A 1926 ruling of the New Jersey State Board of Education made mandatory the furnishing of liability insurance by contractors for school transportation in that state. Section 9 of the transportation contract recommended to school districts by the New Jersey State Board of Education, reads:

> Party of the second part agrees to furnish automobile public liability insurance upon the bodily injuries and property damage suffered by pupils transported in the amount of $5000 as a maximum liability for the injuries or death or property damage suffered by one person and $---- total liability for the injuries, death, or property damage suffered by more than one person, and to place in the hands of the party of the first part the policy of such insurance during the time transportation is being furnished. The insurance company is to be approved by the party of the first part.

Every contract should include at least three things: (1) the bond,[1] (2) the contract proper, (3) the specifications to the contract. Following is a sample contract which may be readily modified to meet the special needs of the individual school district:

DRIVER'S BOND

Know all men by these presents that we, ----------------, [redacted] principal, and ------------------ and -------------- as sureties, are held and firmly bound unto the Board of Education of the ---------------- School District of -------------- ------------------ County, State of ---------, in the sum of

---

[1] The bond should be for from 10 to 25 per cent of the amount of the contract.

---------------------- dollars ($----), for the payment of which we jointly and severally bind ourselves.

The condition of the above obligation is this: That the said contractor has this day entered into a contract, hereto attached, to transport pupils as indicated in said contract. Now, if the said contractor shall well and truly perform the conditions of said contract, on his part to be performed, then this obligation shall be void, otherwise it shall be and remain in full force.

Bond approved this, the ------------- day of ----------------------, 192--.

--------------------------- *President, Board of Education*
--------------------------- *Clerk, Board of Education*
--------------------------- *Contractor*
--------------------------- *Surety*
--------------------------- *Surety*

DRIVER'S CONTRACT

This contract made and entered into this ---- day of ------ 192--, by and between the Board of Education of ---------------------------------School District of ------------------------------- County, State of -----------, party of the first part, and ----------------------------, party of the second part.

WITNESSETH:

(1) That the party of the first part, the Board of Education of the School District, County, and State, aforesaid, agrees and binds itself to employ said ----------------------------------, party of the second part, as driver of school transportation route No. ---------, starting from ---------------------------- and following --- roads to the school building for a period of ---- years, for ---- months to the year, twenty days to the month, at $---- per day for each day of service actually rendered, payable monthly; the return trip shall be by the same route. It is further agreed that, in case the schools are closed for any cause whatever, said Board of Education shall not be liable for the payment of said party of the second part during the period of such closing.

(2) It is further agreed that said Board of Education, party of the first part, is --------- to furnish the vehicle, which in this case shall be --.

(3) Said --------------------------, party of the second part, hereby agrees faithfully to perform his duties as driver of school transportation route No. ---- for the wages specified above and subject to the rules as fixed by said party of the first part, which rules are hereto attached and made a part of this contract.

Witness our signatures this ----------- day of ---------- -----------------, 192--.

--------------------------- *President, Board of Education*
--------------------------- *Clerk, Board of Education*
--------------------------- *Contractor*

SPECIFICATIONS TO CONTRACT

1. The driver, including his substitutes, cannot legally draw pay until he has secured a driver's certificate from the County Board of Education and has filed it with the Board employing him.

2. The driver's certificate may be revoked by the County Board of Education on proof of improper conduct or neglect of duty; if his certificate is revoked, said driver's contract shall be thereby terminated and rendered null and void.

3. The driver shall bring his vehicle to a complete stop before crossing any railroad or interurban electric line. All vehicles shall be constructed so as to have an unobstructed view ahead and to the right and left.

4. When pupils are in it, a vehicle shall not travel more than ---- miles an hour. When the vehicle is owned by the Board of Education, the driver shall not use it for any purpose not designated by said Board, and shall care for it when not in use as the Board of Education directs. Whether the Board of Education owns the vehicle or not, same shall be kept in strictly sanitary and usable condition, and said Board shall be the final judge in such matters.

5. In each school conveyance, one of the older pupils shall be designated as "conductor," whose duties shall be:

a. To open the door for all pupils entering or leaving the conveyance. No pupil shall be permitted upon the steps of the conveyance until the conductor has opened the door.

b. To run ahead at railway crossings, steam or electric, and signal the driver to advance when he is sure there is no danger in crossing.

6. The driver shall exercise the same care over the pupils' conduct as the teacher does in the schoolroom; and he shall be expected to conduct himself while on his route in a manner similar to that expected of teachers in their relationship with pupils.

7. The driver shall be under the direct supervision of the local Superintendent in concurrence with the Board of Education. In the case of pupils transported from another district, the driver shall be under the supervision of the Superintendent or the Board of Education of the school to which the pupils are transported.

8. The driver shall carefully observe all laws and customs pertaining to the public highways.

9. The driver shall arrive at the school not earlier than ---- A.M. and not later than ---- A.M., unless otherwise provided for by the Board of Education or the Superintendent.

10. The driver shall wait on a pupil two minutes if necessary. Pupils persistently tardy shall be reported to the Superintendent.

11. The driver shall, not later than the second week of school, make out a schedule for each stop and post same upon a blank provided by the Board of Education. The Board of Education shall provide sufficient copies of this schedule for the following purpose: one copy of the schedule is to be posted at the front end of the conveyance, and a copy is to be left in the hands of each patron of the route.

12. The driver shall load pupils in the evening according to the directions of the local Superintendent.

13. When the driver owns the vehicle, he shall provide all necessary blankets and heaters to keep the children comfortable.

14. The driver shall promptly make such reports as are required by the Board of Education or local Superintendent.

15. The driver shall be paid $---- per day for each day when trips are actually made. If only portions of trips are made or the route is lengthened, the aforementioned amount shall be prorated on the mileage covered. No pay shall be given for any day during which school is not in session.

16. No substitute driver can be used until such substitute driver has been approved by the Board of Education as a whole, or, in case of an emergency, has been approved by the local Superintendent.

17. The driver shall see that a mirror is placed in the front part of the conveyance in such a way that the pupils in the conveyance and any vehicle approaching from behind may be clearly seen.

18. When the driver owns the vehicle and, in case of a breakdown or for any other reason whatever, it is found impossible to transport pupils to or from school, said driver shall provide other means of conveyance. Said means of conveyance shall be subject to the approval of the local Superintendent.

19. The driver shall be subject to the right of the Board to change pupils from one conveyance to another or to change the route.

20. The driver shall notify at once, if possible, the local Superintendent by telephone whenever he expects to be delayed for any cause for more than fifteen minutes.

21. All motor vehicles shall carry spare tires and other equipment sufficient to repair any temporary breakdowns that may occur. Gasoline tanks shall not be replenished while pupils are in the bus.

22. The Board of Education reserves the right to make additions to or alterations of these rules as it deems advisable, but before doing so, said Board shall give the driver notice of its intentions.

The Conveyance

At present many communities are not giving sufficient attention to the vehicle of transportation. Too frequently the conveyance has hardly a good feature. Often a heavy and dilapidated farm-wagon box is covered and some benches are placed in the wagon box for the children to sit on. This the children are expected to endure. Is it to be wondered that pupils and patrons object to transportation when such facilities are provided?

It is possible to have a better kind of conveyance than the type mentioned. A good school bus should have the following general qualities:

1. It should afford the driver a clear view in every direction. There should be a driver's mirror to enable the driver to see the traffic and to observe the conduct of the children in the bus.

2. It should have sufficient aisle space for the occupants to pass through readily.
3. It should afford protection from the elements. Provision should be made for heating the bus and for robes, if in a climate where needed.
4. It should be provided with ample ventilation and light.
5. There should be ample head room, while still permitting as low a center of gravity for the bus as possible.
6. It should ride comfortably and be of good appearance; for example, the seats and bus body should have good springs. The bus should be well painted inside and out.
7. It should be economical to operate and should be durable. Repair parts should be promptly available.

In brief, the school bus should meet the same standards of economy, durability, safety, cleanliness, and comfort that the school building or the home does. It is a meritorious practice for the principal or the superintendent to inspect the busses from time to time to see that these standards are being maintained. The school bus should not be used for other than school purposes without the approval of the school authorities. It should not be used, particularly when publicly owned, as a general community conveyance.

If the school owns the busses, a good place for sheltering them should be provided. Moreover, they should be protected against fire and theft; insurance covering these items is a good investment. They should not be permitted to stand in the weather and to deteriorate; the loss thus occasioned amounts to almost as much as the depreciation caused by usage.

The motor vehicle is rapidly supplanting the horse-drawn vehicle as a means of transportation. The chief advantage of motor transportation is in the time saved. The typical motor bus can be run with safety at a speed of from fifteen to twenty-five miles an hour, whereas a horse-drawn vehicle does well to travel five miles an hour. Therefore whenever the condition of the roads will permit, because of the saving of pupils' time, motor transportation should be used. Of course roads are so bad in some communities, particularly during certain months of the year, that anything except horse-drawn vehicles is out of the question.

Some schools, especially those which own the motor conveyances, hire either on a part-time or a whole-time basis a mechanic whose duty it is to keep the busses in first-class condition. Some principals affirm that this plan results in financial economy and in better transportation service; some claim, moreover, that six or eight busses are enough for one mechanic to look after. Some of the things that a regularly employed mechanic might do are as follows: keep the busses in good mechanical condition; keep them properly oiled; record the mileage; properly repair and inflate the tires; see that the busses are kept clean and otherwise in a comfortable, safe, and sanitary condition; and, in general, have supervision over the conveyances. Occasionally it will be possible to find among the drivers one of them who can do the mechanical work on all the busses; such an individual might be given a full-time appointment at least during the school year.

Most of the newer types of school busses are so constructed that if it is desired, the body may be removed from the chassis in two or three hours of time. This makes it possible to place the body on a sleigh or on a wagon, which may be used during unusual weather. Moreover, such an arrangement makes it possible for the chassis to be used for some other purpose during the summer months. Many boards of education prefer to own the bus bodies, but do not care to own the means of locomotion.

Whether the board of education should own the means of transportation will depend on local conditions, particularly financial conditions. Because they are unable in most cases to have a good conveyance otherwise, everything seems to be in favor of the board's owning the bus body if finances permit. Because it is difficult to secure the proper care and use of a public-owned chassis, perhaps the chassis should be privately owned.

The Time Schedule

As soon as the route has been traveled a few times, a time schedule indicating when the bus will arrive at each home, going to and from school, should be made out. A tentative schedule will serve for the first day. Both the bus-driver and the principal of the school should have a copy of the time schedule. Moreover, each home that furnishes pupils for the school bus should be notified of the time when the bus will arrive. A sample time schedule is shown in Fig. 55.

GOING TO SCHOOL		GOING HOME		DISTANCE (IN MILES)
	A.M.		*P.M.*	
Leave the home of				
Mr. Pelky	8.00	Leave the schoolhouse	3.45	
Mr. Daily	8.05	Arrive at the home of		
Mr. Hansen	8.12	Mr. Wilbert	3.51	1.0
Leave Four-Mile Corner	8.25	Mr. Willet	3.56	2.0
Leave the home of		Mr. Menton	3.57	2.1
Mr. Winger	8.27	Mr. Foster	3.58	2.2
Mr. Foster	8.30	Mr. Winger	4.01	2.5
Mr. Menton	8.31			
Mr. Willet	8.32	Arrive at Four-Mile Corner	4.03	4.0
Mr. Wilbert	8.37	Arrive at the home of		
Arrive at the schoolhouse	8.45	Mr. Hansen	4.16	6.0
		Mr. Daily	4.23	7.5
		Mr. Pelky	4.30	8.4

FIG. 55. A sample time schedule for a school bus

The schedule should provide for the conveyance to arrive at school approximately fifteen minutes before roll call. This amount of time is ample for the pupils to make arrangements to begin school punctually, and it also leaves a margin for any necessary delays along the route. The practice on the part of some drivers of regularly arriving at school an hour or two before school opens should not be tolerated. The rules and regulations governing the transportation service should set the time of arrival, and this time should be followed as closely as possible. Many farmer drivers, particularly during the busy farming seasons, rush through their routes in order that they can return to the farm work. This is a convenience to them, but it is often an inconvenience to pupils, parents, and teachers.

When the time schedules are left at the homes, there should also be left a copy of the regulations pertaining to school-transportation service. A sample list of such regulations follows:

LIST OF TRANSPORTATION REGULATIONS OF INTEREST TO PUPILS AND PATRONS IN ____________ SCHOOL DISTRICT

1. The school conveyances are for the accommodation of the patrons and pupils of the district, and it shall be the duty of each driver to do everything reasonably possible for the convenience of the pupils and patrons.

2. Not later than ten (10) days after the opening of school each driver shall submit a time schedule to the superintendent for approval. Said schedule shall show the time of departure in the morning for school from the home of each parent. Such schedule shall be arranged so that the conveyance will not reach the school building earlier than ________ in the morning unless excused by the superintendent or by action of the board of education.

3. The driver shall keep his watch with the time-regulator of the school building and shall not pass a home before the time stated in the schedule.

4. The driver shall wait two minutes for any pupil not ready, unless it is known that said pupil will not attend school that day. If tardiness on the part of a pupil is constant, the pupil shall be reported to the superintendent.

5. Wherever it means extra driving for the school bus, parents should inform the driver by telephone, if possible, whenever pupils are not to attend school.

6. The driver shall have complete control of pupils while in the conveyance and shall require pupils to be seated while the conveyance is in motion and to abstain from boisterous and improper conduct.

7. Pupils refusing to obey the driver shall be reported to the superintendent.

8. Parents have the privilege of making (preferably in writing) all necessary complaints to the superintendent.

9. A copy of these regulations, together with the time schedule, shall be posted in each conveyance and a copy left in the hands of each parent or guardian.

Approved and adopted by The Board of Education
of _______ School District

Of course, it is not always possible to follow the schedule to the exact minute. The condition of the roads, particularly in the spring, frequently makes it necessary to revise the schedule; such revisions should be made known to the pupils and parents. The aim should be to follow the schedule as closely as possible. Pupils will know when the bus is due, and they must be ready at that time.

It is good practice to have the drivers make a daily report of some kind to the superintendent or principal. This should show such facts as any variation from the time schedule, with the reasons, and cases of improper conduct on the part of pupils. There are advantages in keeping report blanks for such purpose in the principal's office where drivers will have to report daily in order to fill out the blanks. A suggestive form for the driver's report is shown in Fig. 56 on the following page.[1]

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[1] For Figs. 56, 57, 58, and 59 many suggestions were received from George Howard's article which is listed in the Selected References at the close of this chapter.

For the Week ending ___________, 192__

School ____

County _____________ School Bus No. or License No. ______

	Mon.	Tues.	Wed.	Thurs.	Fri.	Total
Pupil attendance						
First trip						
Second trip						
Number of absences . . .						
Names of pupils tardy for bus						
Miles traveled						
In route						
Not in route						
Total						
Time schedule						
Morning						
First trip						
At home of first pupil						
Arrived at school . .						
Second trip						
Left school						
Arrived at school . .						
Afternoon						
First trip						
Left school						
Arrived at school . .						
Second trip						
Left school						
Arrived at home of last pupil						
Have you reported all misconduct of pupils?						
Have you reported all bus trouble, reasons for delay, and accidents?						
Did you stop at every railroad crossing?						

____
Driver

Fig. 56. School bus-driver's daily report

The Cost of Transportation

Questions regarding the cost of school transportation are frequently asked, but infrequently answered, although they are deserving of answers. A system of records should be instituted which would enable school officials to answer these questions with accuracy. Of course the cost must vary from community to community and from month to month in the same community.

G. A. Selke[1] suggests the following local conditions, which are the essential factors in determining unit costs of transportation: (1) supply of available bus-drivers, (2) density of school population along bus routes, (3) condition of roads, (4) local economic conditions, (5) organization of bus routes, (6) administration and supervision of bus routes, and (7) method of transportation. He also shows the influence of the number of pupils transported on the unit costs of transporting one pupil per year and one pupil per mile. He finds that the larger the number of pupils transported the less the cost of transportation.

There is considerable need for research in this field. For example, no one knows whether the privately owned conveyance is more economical than the publicly owned one; no one knows the relative costs of operating various makes of school busses; no one knows the best bases on which county or state aid for transportation should be given. Research in these and allied fields would be most helpful.

When busses are publicly owned, a system of record-keeping should be instituted to show the cost of running each bus from month to month. A form such as that suggested in Fig. 57 may be filled out each month by the principal of the school. The data for this monthly report are

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[1] Transportation Costs in Minnesota Consolidated Schools, *Rural School Leaflet No. 29* (June, 1924), p. 5. United States Bureau of Education.

For the Month ending ----------, 192--

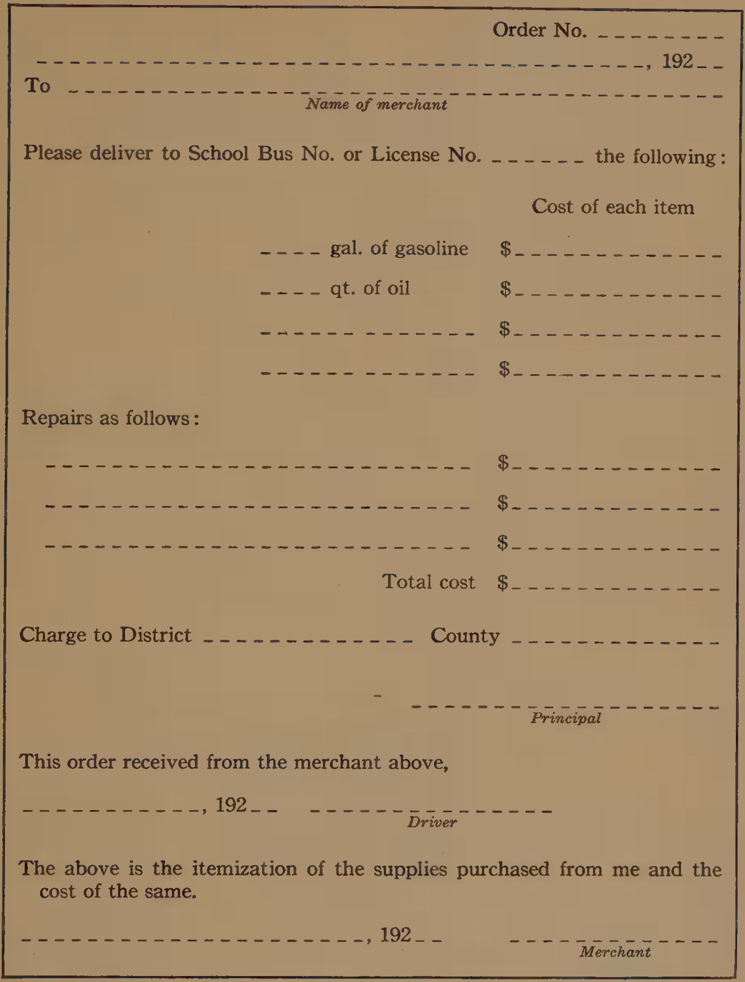
School ----------------- County ---------------

Principal --

	School Bus No. or License No.									Total
Pupil attendance										
Number of children carried										
First trip										
Second trip										
Total										
Number of cases of absence										
Length of route										
First trip										
Second trip										
Miles traveled										
In route										
Not in route										
Total										
Type of road										
Total miles of hard-surface roads										
Total miles of gravel roads										
Total miles of unimproved roads										
Total (check with above)										
Cost of operation										
Number of gallons of gasoline										
Total cost of gasoline . .										
Number of quarts of oil . .										
Total cost of oil.										
Cost of tires and tubes .										
Cost of repairs and other supplies										
Driver's salary										
Total cost										

Fig. 57. Principal's monthly report for school busses

readily secured from the driver's daily reports (see Fig. 56) and from the purchase orders (see Fig. 58). A monthly report on each bus will enable the principal to compare the cost of operating one school bus for any month with similar



Order No. ---------

--, 192--

To --

Name of merchant

Please deliver to School Bus No. or License No. ------- the following:

Cost of each item

---- gal. of gasoline $--------------

---- qt. of oil $--------------

------ ------- $--------------

------ ------- $--------------

Repairs as follows:

-------------------------- $--------------

-------------------------- $--------------

-------------------------- $--------------

Total cost $--------------

Charge to District -------------- County --------------

Principal

This order received from the merchant above,

------------, 192-- ----------------

Driver

The above is the itemization of the supplies purchased from me and the cost of the same.

----------------------, 192-- --------------

Merchant

FIG. 58. Purchase-order blank for supplies for school busses

To be made out in triplicate, one copy to be retained by the principal, and the other two to be taken by the driver to the merchant. Once each month the merchant sends one copy of the bill, properly signed by the driver and himself, to the principal. The merchant's bill is paid each month costs for each of the other busses. Such monthly reports will also enable the principal to compare the operating costs of a given bus with its cost during earlier months. Such data often make it possible early to discover an extravagance in a bus and to suggest the elimination of such waste.

An annual cost summary should be made for each bus. The form shown in Fig. 59 is suggestive of the type of data to be collected in the making of such a cost summary. When the cost statement for each bus has been made, transportation costs in the various school districts can readily be compared.

One item of operating cost in school transportation, when busses are publicly owned, is so frequently neglected that mention should be made of it — that is, depreciation of equipment. Without a charge for this all items of cost have not been included. The Engineering Department of the Graham Brothers, Detroit, Michigan, says, regarding the factor of depreciation and ways of figuring it:

> The mileage traveled by the school bus is relatively low, a rather high figure being 7000 miles a year. If properly maintained, a bus may have a useful life of 150,000 miles or more, which would extend over twenty years of such operation. It is evident, therefore, that depreciation must be figured on another basis, since it would not be prudent to write off the investment over so long a period in view of probable improvement in design.
>
> If we assume a life of eight years, we obtain a mileage of 56,000. If the cost to be depreciated is $4000, this item of depreciation will amount to slightly more than seven cents per mile. The importance of first cost of the equipment is well emphasized by this figure. If the cost to be depreciated is approximately $2000, the depreciation charge per mile will be only about three cents.
>
> It must be thoroughly appreciated that operating costs will vary in different localities having different conditions as to grades, road surfaces, and wages, and different conditions as to route, distance traveled, methods of operation, and the skill of drivers. Operating

__________ SCHOOL __________ COUNTY __________ PRINCIPAL
REPORT ON BUS NO. __________ FOR SCHOOL YEAR __________
MAKE OF BUS __________ MODEL ______ MAKE OF BODY __________
TONNAGE ______ NO. OF CYLINDERS ____ SCHOOL MONTHS USED ______ SCHOOL YEAR __________
DATE PURCHASED __________
SERIAL NO. __________ MOTOR NO. __________
SCHOOL MONTHS USED ________ SCHOOL YEAR ________

INVESTMENT		ANNUAL FIXED COSTS	
1. First cost of chassis with tires	$______	1. Interest	$______
2. First cost of body and equipment	$______	2. Insurance	$______
3. Total first cost	$______	3. License	$______
4. Cost of original set of tires	$______	4. Garage	$______
		5. Depreciation	$______
		6. Total	$______

ANNUAL OPERATION COST

	1st Mo.	2d Mo.	3d Mo.	4th Mo.	5th Mo.	6th Mo.	7th Mo.	8th Mo.	9th Mo.	Annual Total	Per Mile
1. Driver	____	____	____	____	____	____	____	____	____	$____	$____
2. Gasoline	____	____	____	____	____	____	____	____	____	$____	$____
3. Oil	____	____	____	____	____	____	____	____	____	$____	$____
4. Tires and tubes	____	____	____	____	____	____	____	____	____	$____	$____
5. Repairs and other supplies	____	____	____	____	____	____	____	____	____	$____	$____
6. Total	____	____	____	____	____	____	____	____	____	$____	$____

1. Annual mileage	______	1. Total annual cost	$______
2. Annual miles of haul	______	2. Cost per mile traveled	$______
3. Average load when hauling	______	3. Cost per mile of haul	$______
4. Type of road		4. Cost per pupil hauled	$______
Hard surface	______ miles	5. Cost per day operated	$______
Gravel	______ miles	6. Cost per pupil per day	$______
Unimproved	______ miles	7. Cost per pupil per mile	$______
5. Number of days operated	______		
6. Number of pupils hauled	______		
7. Number of pupils per day	______		

FIG. 59. Annual cost summary for a school bus

costs also depend on the prices of materials and supplies, which are always subject to fluctuation.

Let us assume that the child living farthest from the school is about 10 miles distant along the route traveled. The bus makes two trips a day from the schoolhouse, out and back, but saves a small amount on the out trip in the morning and on the in trip in the evening, thus having a total of 39 miles per day. Figure five school days per week, and this bus will have an annual mileage of 7020, if not used for other purposes. The annual expense might be as follows:

	Year's Cost for 7020 Miles		Cost per Mile	
Direct Costs [1]				
Gasoline, 10 miles per gallon, 702 gallons at 21¢ per gallon	$147.42		$.0210	
Cylinder oil, 400 miles per gallon, 17½ gallons at 77¢ per gallon	13.48		.0019	
Tire depreciation, $220 per set, estimated life, 10,000 miles	154.44		.0220	
Maintenance and repair reserve	122.85		.0175	
Truck depreciation, $2000 for 50,000 miles	280.80		.0400	
Total direct costs		$718.99		$.1024
Indirect Costs, whether bus runs or not				
License	25.00		.0036	
Garage	60.00		.0086	
Insurance	100.00		.0142	
Total indirect costs		$185.00		$.0264
Total vehicle costs		$903.99		$.1288
Driver's Costs				
If a driver is required for four hours each day for 180 days at cost of 40¢ an hour, the cost for driver will amount to		$288.00		$.0410
Total operating costs, including driver		$1191.99		$.1698

NOTE. Cost data similar to the above should be computed annually for each school bus. When they are not thus computed, methods akin to legerdemain have been used.

---

[1] These vary with mileage run.

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